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MATERIA MEDICA, PHARMACY, AND THERAPEUTICS

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EDITORIAL.

The Pharmacy Act in Western Virginia.

THE enforcement of this act is not without opposition, if we may judge from the protests which appear in the secular papers of that region. The customary plea is made by the writers, that the law oppresses a class of tradesmen whose existence in a community is of public benefit, and not a nuisance; and that pharmacists, as well as grocers, bakers, and other dealers, have a right to pursue their avocation without being harassed by discriminating laws and taxes. The writers of these articles uniformly fail to reply to the argument of the movers and supporters of the law (who also are pharmacists), that the welfare of the public requires that some special knowledge of his business should be required of the person who deals in poisons. No one can urge the enactment of a law regulating the sale of drugs on any other ground. It remains only for the opponents of the bill to show that no such public necessity exists, yet this is precisely the question which they avoid and do not attempt to argue.

The Drug, Paint, and Chemical Exchange.

THIS organization has now been in existence in New York over three months, and appears to have fully realized the wishes of its founders. A recent editorial in the *Oil, Paint, and Drug Reporter* states that the membership has reached to seventy-five, and it is under contemplation to incorporate the organization and increase the price of seats. Although daily meetings are not yet held, there is a daily bulletin of commercial news, of interest to the trades represented, which is often twenty-four to forty-eight hours in advance of its publication in newspapers. A system of "calls" is to be instituted, and the Arbitration Committee has already rendered considerable service in deciding a case originating in a sale of opium.

Tariff Revision.

AT the tariff convention to be held in this city on the 30th inst., it is very probable that the duties and taxes on drugs, chemicals, perfumery, and proprietary medicines will receive a considerable share of attention. Mr. W. A. Gellatly, of W. H. Schieffelin & Co., who has been among the most prominent of those who have urged the necessity for reforms in this particular, has already expressed, in brief, his views of the question through a reporter of the *Times*, and we suggest that druggists and others, who desire to influence tariff or other legislation, will accomplish their purpose much more certainly by influencing public opinion through the daily papers than by writing to trade-journals whose readers are already more or less familiar with the subjects.

Cultivated Sponges.

A NUMBER of dealers in New York are exhibiting sponges that have been grown from cuttings made by the method of Prof. Oscar Schmidt, of Gratz. Small fragments cut from the parent sponge under water, and fixed on a sandy bottom by means of skewers, at once commence to grow. Three years is said to be a sufficient time for the production of marketable sponges. In one experiment abroad, 4,000 sponges were raised at a total cost of $50, and the experiment is being repeated successfully at Pine Key on the coast of Florida. One of the dealers referred to (McKesson & Robbins) shows a sponge thus grown which measures 7x8 inches in diameter, and is of excellent shape and quality. This industry bids fair to become a profitable one in suitable localities, and is worthy of attention.

MATERIA MEDICA, PHARMACY, AND THERAPEUTICS.

Dorema Ammoniacum.*

DOREMA AMMONIACUM (*Don*) is a large herbaceous plant, enduring for several years, and described as perennial, but probably dying after flowering, with a large cylindrical, somewhat fusiform root, branched below. The stem grows 5 to 7 feet high, is erect, straight, cylindrical, stout, gradually tapering, 3 to 4 inches in circumference at the base, striate, pale-green, solid, with about 12 to 16 rather short, erect, tapering branches in the upper half, gradually becoming shorter, and thus forming a narrow, pyramidal head. Leaves few, the petioles dilated into a sheath which nearly surrounds the stem—large, 1½ to 2 feet long, bi- or tripinnate; stem leaves 3 or 4, reduced to large but close, amplexicaul pale sheaths, much elongated and usually reflexed at the extremity. Flowers, which appear in May, are very small, arranged in simple heads or umbels, and more or less immersed in a dense, white cottony wool; heads numerous, scarcely ½ inch in diameter, globose. Fruit very shortly stalked, spreading, about ⅛ inch long, oval, much compressed, more or less covered with a woolly down or nearly glabrous (*Bentley and Trimen*).

The ammoniacum plant is but slightly smaller than Ferula Scorodosma (one of the chief sources of asafœtida), and is found, like the latter, exclusively upon sandy places in the same districts. Still, the home of Dorema does not extend quite as far as that of Scorodosma, particularly towards the east; its western boundary extends from the eastern shore of the Aral Sea somewhere into the south-easterly neighborhood of Ispahan, where whole Dorema copses or forests may be found—for instance, between the curious city Yezdikhast and Aminabad. The southern border appears to have also reached its limit here, and passes from here through the great salt-desert in a direct line to Herat. Upon the immense deserts to the west of the Aral Sea, Dorema occurs in large numbers, and always accompanied by scorodosma, particularly between the river-beds of the Djang-Darya and Kuvan. Contrary to the habit of Scorodosma, however, Dorema crosses the lower course of the Syr-Darya (the ancient Jaxartes), and spreads north-easterly to southern Siberia, to the Kirghis-deserts about the lakes of Balkhash and Ala-Kul and even as far as Chinese Dsungaria (Songaria), while it seems to be completely wanting in the district between the upper Syr-Darya and the upper Amu-Darya (Oxus). Between the Caspian and the Aral seas neither Dorema nor Scorodosma are met with. In the east Persian high plateaus and mountains, towards the border of Herat, Dorema is found at as high altitudes, if not higher, than Scorodosma.

Dorema Ammoniacum (*Don*).

The bright-yellow, carrot-like spongy root appears to be, in general, less strong than that of Scorodosma, but is, like the latter, very rich in milky juice, and remains so until after the stem has been completely formed and the fruit has ripened.

There is considerable similarity between the Dorema-root and Sumbul-root, and the former

* The illustration after *Luerssen* (Medicinisch-Pharmaceutische Botanik, II., 780), who followed *Bentley and Trimen* (*Med. Plants*, II., tab. 129,) in reducing Borczcow's original plate (Mém. Acad. St. Petersburg, 1861, t. 3). The text, partly after Bentley and Trimen, partly after Flückiger in *Pharmakognosie des Pflanzenreiches*, 2te Aufl., I., 59.

The name *Dorema* is the Greek δώρημα, "gift," and has been given by Don without any special reason. Ammoniacum is etymologically connected with ἄμμος, "sand."

has, in fact, already been sold at Bombay as Sumbul-root, after having been sprinkled with a little tincture of musk.*

Prof. Flückiger received specimens of Doremaroots from Prof. Dymock, of Bombay, which were up to 8 cm. ($3\frac{3}{16}$ inch.) thick, and about 20 cm. (8 inch.) long. They are brought in considerable quantities to Bombay, where they are known as *boi*, and are employed by the Parsis for fumigations in their fire-temples. These roots are very resinous. By washing slices with cold water, then drying at 100° C., and boiling with alcohol of 90%, Prof. Flückiger obtained 26% of resin.

Not only the root, but the stem and other parts of the plant above ground are full of milky juice, which exudes spontaneously, but much more copiously in consequence of punctures made by insects, and which congeals, in form of white grains of different sizes, from a few millimeters to that of a nut. This is the finest kind of commercial ammoniac, ammoniacum in granis. A less pure kind, ammoniacum in massa, is that which collects about the root in form of irregular lumps.

According to Johnson, ammoniac is brought either directly to Ispahan or at once down to the sea-coast. Buhse, who found ammoniac plants to the south of Damaghan, on the northern border of the great salt-desert, was told there that the plants are quite numerous near Tabbas (about lat. 33° N.), and that much ammoniac was gathered there. According to Borczcow, all the ammoniac collected in Bokhara is consumed there; only the Persian is exported, and probably always to Bombay. Still, what arrives at Bombay is generally not the gum-resin ammoniac itself, but the whole plant collected at the time when the fruit is ripe. According to Dymock, it is only after reaching Bombay that the gum-resin is picked off and separated from the stems and fruit, which are pierced all over by insects (beetles). From Bombay it is shipped to London. The total quantity reaching Bombay annually amounts to less than 2,000 cwt.

The somewhat transparent tears of ammoniac are white, externally brownish, never reddish or greenish, of a waxy gloss, brittle when cold, and separate or only slightly adherent. The tears can be softened by pressure between the fingers, and may be easily emulsified with water. [Other properties of ammoniac are too well known to need mention here.]

* The geographical distribution, description of root, and chemical history are more or less freely after *Flückiger, Pharmakognosie des Pflanzenreiches*, 8vo, Berlin, part I., which, while constructed on a different plan from that of the *Pharmacographia*, yet has been enriched with almost the whole of the contents of the latter work, corrected and brought down to date. We take this occasion to again draw attention to it; *for no possessor of the Pharmacographia can afford to be without it.* The second and concluding part is expected to be completed in a short time.—ED. N. R.

Ammoniac is a mixture of ethereal oil and resin, a pectin-like body, and gum in varying proportions. The more or less pronounced softness is partly owing to the presence of water. The amount of resin present may reach as high as 70%. It is soluble in twice its weight of carbon disulphide. This solution assumes a red color with concentrated sulphuric acid. On moistening the crude resin with caustic lye or solution of chloride of lime, it becomes yellow. Subjected to dry distillation, the resin yields a large amount of brown-colored oils, which begin to boil at about 250° C., but which yield no blue-colored fraction, even when rectified. These empyreumatic oils assume a deep-red color with even highly dilute solution of ferric chloride; only a small amount of the oils is soluble in potash. No umbelliferon is obtained during the dry distillation of ammoniac; accordingly, the drug itself, unlike asafœtida and sagapenum, exhibits no fluorescence on covering it with weak alcohol mixed with a small quantity of caustic alkali. Boiling water is rendered yellow by ammoniac resin; the liquid has an acid reaction, and assumes a deep-red color with ferric chloride. On fusing the resin with caustic potash, resorcin is formed. On distilling the resin mixed with ten times its weight of zinc-powder, in a stream of hydrogen gas, it yields about 40% of an aromatic oil, in which exists a very large proportion of a hydrocarbon derivable from benzol.*

The largest tears of ammoniac afforded to Prof. Flückiger 70.7% of resin and 28.1% of residue, which latter, however, must not be regarded, any more than the corresponding residue from asafœtida and galbanum, as merely consisting of gum.

Only a small portion is soluble in water, forming a neutral, lævogyre solution which mixes clear with neutral acetate of lead, but is precipitated by basic acetate of lead, and also by ferric chloride. The portion insoluble in water, after addition of an alkali, yields a clear solution, which remains clear even when neutralized. This portion, which is insoluble in water, does not yield mucic acid by treatment with nitric acid.

Commercial ammoniac generally contains very little ethereal oil. Flückiger obtained only ½%. It turned the plane of polarization 5° 8′ to the right, in a 25 mm. tube, examined in Wild's Polaristrobometer. 1 part of this oil, diluted with 100 parts of carbon disulphide, assumes only a yellowish color on the addition of concentrated sulphuric or fuming nitric acid; bromine vapor does not color it at all; ferric chloride strongly diluted with alcohol is rendered brownish-red by the oil. On pouring 4 parts of the oil on 1 part of nitric acid (1.250 spec. gr.) and 1 part of alcohol (0.830), contained in a plate,

* Ciamician, *Ber. d. Deutsch Chem. Ges.*, 1879, 1663.

no crystals of terpin ($C_{10}H_{10}O_2.H_2O$) are produced. Both the oil and the resin of ammoniac are free from sulphur.

[ORIGINAL COMMUNICATION.]

SODIO-COBALTIC NITRITE A REAGENT FOR POTASSIUM.

BY PROF. CHARLES O. CURTMAN, OF ST. LOUIS, MISSOURI.

[Note by ED. NEW REM.—The publication of an article by L. L. Koninck* in the September number of this journal has elicited a communication from Prof. Curtman, in which he states that he had concluded some investigations leading to the same results as are given in that paper, during last June. He at that time communicated them to several friends, and on July 3d sent a communication to the *Deutsche Chemische Gesellschaft*, which has since appeared in number 14 of the *Berichte*. Prof. Curtman also obliges us with a translation of this article, which is as follows:]

WHEN to a saturated aqueous solution of *sodium nitrite* acetic acid is added until a sufficiently acid reaction ensues, and then *cobaltous nitrate* (about one-tenth of the nitrite of sodium employed), the liquid will form a deep yellowish-purple solution of *sodio-cobaltic nitrite*.

If this solution be added to that of a potassium salt, in sufficient concentration, there is formed at once the well-known yellow precipitate of *tri-potassic cobaltic nitrite*, which serves in the separation of cobalt from nickel. In more dilute solutions, the precipitation requires a little time; when very great dilutions are used even several hours. All the conditions and cautions observed in the process for separation of cobalt and nickel by potassic nitrite, must, of course, be observed also. Besides the salts of potassium, those of rubidium, cæsium, and ammonium are also precipitated. No precipitate falls, however, with lithium, barium, strontium, calcium, or magnesium, provided the reagent be free from sulphuric acid. Hence, potassium may be determined *directly* in *presence* of these bases. Neither is it necessary to convert the salt into that of another acid, as the reaction occurs with equal promptness when potassium sulphate, phosphate, acetate, chloride, or nitrate is used. Potassium iodide is not suitable on account of the separation of free iodine interfering with the prompt recognition of the precipitate.

While it is very probable that the method is suitable also for quantitative determinations, I have not yet sufficiently investigated this to affirm it positively.

Glycyphyllin.—WRIGHT and RENNIE have found in an aqueous extract of *Smilax glycyphylla* which is used in Australia as a remedy in scurvy and other diseases, a crystalline principle of a sweet taste, which they have named glycyphyllin, and to which they assign the formula $C_{26}H_{14}O_{12}.3H_2O$. It is extracted by means of ether.—*Journ. Chem. Soc.*

* Please correct "nitrate of sodium" (p. 280, September number) into "nitrite of sodium."

[ORIGINAL COMMUNICATION.]

ON THE PREPARATION OF LIQUIDS OF A FIXED SPECIFIC GRAVITY WITHOUT THE USE OF PERCENTAGE TABLES.

BY EDO CLAASSEN.

A TASK often required in pharmaceutical laboratories is that of adjusting liquids to a certain specific gravity. It would, no doubt, be easy to do it, if the quantity of the mixture were always the same as that of both the constituents together. But, as this is not always the case (as for instance in diluting alcohol with water), I have, in the March number of NEW REMEDIES for 1880, published the formulas regarding this matter in reference to the weight and percentage only of the liquids to be mixed. These formulas are as simple and short as possible, and sufficient for all cases; they will surely be a good help to every one who has to do the above work. Nothing is, however, more evident than the fact that the weight and percentage in these formulas can be replaced by measure and specific gravity, *if the mixture is equal in quantity to both the constituents together.*

For this case I have undertaken, as the following lines will show, to find the formulæ that are necessary.

I. *Given a liquid of known quantity and specific gravity. Required to know the quantity of a liquid of the same kind of higher or lower specific gravity or of water, which will have to be added to produce a desired specific gravity.*

Let *a* be the quantity of the given liquid,
b its specific gravity,
c the specific gravity of the liquid to be mixed with *a* or of water,
d the desired specific gravity of the mixture,
x the quantity of the liquid of the same kind of higher or lower specific gravity or of water to be added to *a*.

Then we have: $$x = \frac{a(b-d)}{d-c}$$*

or in words:

To find *x* (the quantity of the liquid or of water to be added), multiply the difference between the specific gravity of the liquid *a* and the desired specific gravity of the mixture by the quantity of the liquid *a*, and divide the product by the difference between the desired specific gravity and that of the liquid (or of water) to be mixed with *a*.

Example 1. Supposing we have 40 parts of a liquid of 1.45 specific gravity, and want to mix it

* Derived thus:

$$ab+cx=(a+x)d.$$
$$ab+cx=ad+dx.$$
$$ab-ad=dx-cx.$$
$$a(b-d)=x(d-c).$$
$$\frac{a(b-d)}{d-c}=x.$$

with a liquid of 1.23 specific gravity in order to get one of 1.30 specific gravity; how much of the liquid of 1.23 specific gravity must be added?

x (the quantity of the liquid of 1.23 sp. gr.) =

$$\frac{40(1.45-1.30)}{1.30-1.23}=\frac{40\,.\,0.15}{0.07}=\frac{40.15}{7}=\frac{600}{7}=85\tfrac{5}{7}$$

$85\frac{5}{7}$ parts of a liquid of 1.23 specific gravity must be added to 40 parts of the liquid of 1.45 specific gravity to make a liquid of 1.30 specific gravity.

Example 2. Supposing we have 40 parts of a liquid of 1.45 specific gravity and want to mix it with water in order to get one of 1.30 specific gravity; how much water must be added?

x (the quantity of water) =

$$\frac{40(1.45-1.30)}{1.30-1.00}=\frac{40\,.\,0.15}{0.30}=\frac{40\,.\,15}{30}=\frac{600}{30}=20$$

20 parts of water must be added to 40 parts of a liquid of 1.45 specific gravity in order to get one of 1.30 specific gravity.

II. *Given two liquids of the same kind, one of higher and the other of lower specific gravity, or one of any specific gravity, the other being water. Required to know the quantity of the liquid to be added to the other, or of water to be added to the liquid on hand, to produce a desired quantity and specific gravity.*

Let a be the desired quantity of the mixed liquids,
b the specific gravity of one of the liquids,
c the specific gravity of the other liquid, or of water to be added to b,
d the specific gravity of the mixture,
x the quantity of one of the liquids or of water to be added to the other liquid.

Then we have: $x=\dfrac{a\,(b-d)}{b-c}$ *

or, in words:

To find x (the quantity of the liquid c, or of water to be added to the liquid b), multiply the difference between the specific gravity of the liquid b and the desired specific gravity of the mixture, and divide the product by the difference between the specific gravity of the liquid b and that of the liquid c or of water.

Example. Supposing we have a liquid of 0.960 specific gravity, and another of 0.880 specific gravity. We want 40 parts of a liquid of 0.905 specific gravity.

(1) How much of the liquid c (the liquid of 0.960 specific gravity in this example) must be taken?

x (the quantity of the liquid c)=

$$\frac{40(0.880-0.905)}{0.880-0.960}=\frac{40.-0\,025}{-0.080}=\frac{40.25}{80}=\frac{25}{2}=12\tfrac{1}{2}.$$

$12\frac{1}{2}$ parts of the liquid of 0.960 specific gravity must be mixed with $40-12\frac{1}{2}=27\frac{1}{2}$ parts of the liquid of 0.880 specific gravity in order to get 40 parts of a liquid of 0.905 specific gravity, as the following will also show:

(2) How much of the liquid c (the liquid of 0.880 specific gravity in this example) must be taken?

x (the quantity of the liquid c)=

$$\frac{40\,(0.960-0.905)}{0.960-0.880}=\frac{40\,.\,0.055}{0.080}=\frac{40.55}{80}=\frac{55}{2}=27\tfrac{1}{2}.$$

$27\frac{1}{2}$ parts of the liquid of 0.880 specific gravity must be mixed with $40-27\frac{1}{2}=12\frac{1}{2}$ parts of the liquid of 0.960 specific gravity in order to get 40 parts of a liquid of 0.905 specific gravity.

Example. Supposing we have a liquid of 0.905 specific gravity. We want 40 parts of a liquid of 0.960 specific gravity. How much water must be taken?

x (the quantity of water)=

$$\frac{40(0\,905-0.960)}{0.905-1.000}=\frac{40.0\,055}{0.095}=\frac{40.55}{95}=\frac{2200}{95}=23\tfrac{3}{19}$$

$23\frac{3}{19}$ parts of water must be mixed with $40-23\frac{3}{19}=16\frac{16}{19}$ parts of the liquid of 0.905 specific gravity in order to get 40 parts of a liquid of 0.960 specific gravity.

CLEVELAND, O., August, 1881.

* Derived thus:

$$(a-x)\,b+cx=ad.$$
$$ab-bx+cx=ad.$$
$$ab-ad=bx-cx.$$
$$a\,(b-d)=x\,(b-c).$$
$$\frac{a\,(b-d)}{b-c}=x.$$

[ORIGINAL COMMUNICATION.]

ASPARAGIN FROM THE ROOT OF THE GARDEN HOLLYHOCK (ALTHÆA ROSEA).

BY EDO CLAASSEN.

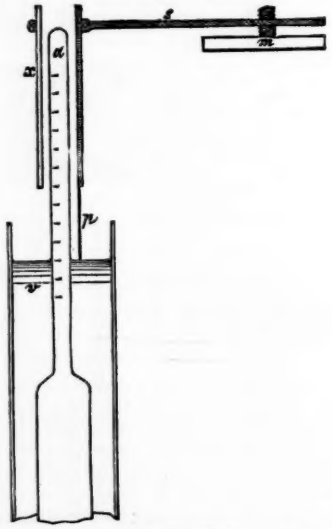
IT is well known that asparagin is present in the root of the marsh mallow (*Althæa officinalis*), and it seemed to me, therefore, probable that the same principle would also be found in other species of the same genus; for instance, in the garden hollihock (*Althæa rosea*). I tried to prepare it from the fresh root of this plant, and did it, as below stated, with good result, taking advantage of the property of the asparagin being hardly soluble in alcohol. One hundred parts of the root were crushed, extracted with cold water, with the addition of a small quantity of quicklime, in order to make the mucilage insoluble. The extraction was once more repeated, and the clear liquid evaporated to the consistence of syrup, or about $6\frac{1}{2}$ parts. This extract was precipitated by an equal weight of alcohol, the precipitate (about $3\frac{1}{4}$ parts) diluted with half its weight of water, and again precipitated with alcohol (about an equal quantity = 5 parts). The crystalline precipitate formed by this operation was separated from the liquid by collecting it on a cloth; it was then pressed, dissolved in hot water, treated with animal charcoal, and crystallized. The weight of the pure white crystals was equal to 0.2 parts.

CLEVELAND, O.

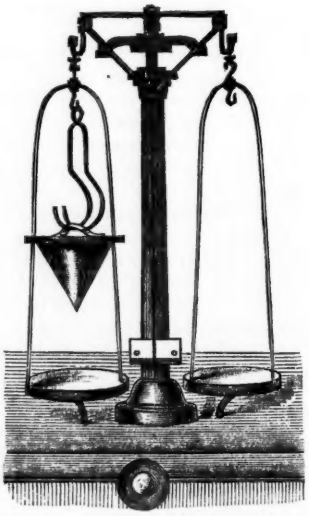
An Improved Method of Reading off Degrees on Areometer Scales.

Owing to the tendency of most liquids, when contained in narrow cylinders, to form a concave or convex surface, it becomes somewhat difficult to distinguish with the eye the exact point at which the surface of the liquid stands on the scale of the hydrometer. The capillary attraction, in obedience to which a liquid rises up against the wall of the containing vessel, as well as against the stem of the hydrometer, is particularly a hindrance to accuracy. Mr. Adolf Mayer proposes to overcome this difficulty in the following manner:

To one end of a short glass-tube *x*, upon which is engraved an exact millimeter-scale, is fused a piece of stout platinum wire, *p*, so that this wire forms a straight continuation of the tube. The tube itself is held somewhat loosely in the loop-end of a movable bracket, so that it may be raised or lowered at will by gently pushing upwards or downwards. A fine adjustment of the tube may be obtained by means of the micrometer screw *m*. The liquid to be examined having been introduced into the cylinder, the areometer is next carefully permitted to sink to its level, and the open tube *x* is then brought down over it, without touching, until the end of the platinum wire is only a short distance from the surface of the liquid. The bracket having been fastened, the tube *x* may be approached still nearer to the liquid by pushing the tube gently downwards; but the actual contact of the end of the platinum wire with the surface of the liquid is accomplished by means of the micrometer screw. It will be noticed that the calibre of the open tube *x* should be such that the end of the platinum wire may touch the surface of the liquid at its normal limit, away from the ascending curve, near the stem of the areometer. The contact of wire and liquid may be brought about with great exactness, and with no greater error than 0.1 millimeter. Whenever the adjustment is perfect, that degree of the areometer is noted which exactly coincides with one of the degrees on the millimeter scale. By a previously constructed table—based on the known length of tube + wire in millimeters, and on the relationship of millimetres to the degrees of the areometer—the exact point on the stem of the areometer, which is on a level with the end of the platinum wire, and therefore the exact degree on the scale of the areometer may be determined within 0.1 millimeter.—*Zeitsch. f. anal. Chem.*, XX., 378.



} Mayer's Apparatus for Reading Hydrometer Scales.



Gilbert's Apparatus for Weighing Filters.

New Apparatus for Weighing Filters.

In weighing filters containing precipitates, it is the usual practice to inclose them either within watch glasses held together by a clamp, or within thin, wide-mouthed bottles provided with glass stoppers. Both of these methods, however, particularly the former, have some disadvantages, owing to the smallness of the space into which the filter must be pressed, to the necessity of taking hold of it with the hand so as to fold in the edges, and to the alteration of form, which often prevents their replacement in the funnel for a fresh treatment with solvents. Mr. C. Gilbert, of Hamburg, avoids these defects by inclosing the filter into a small, hollow cone (of 60°), made of nickelplated sheet copper, and provided with a turned-over, planed edge, upon which a thin piece of plate-glass is placed and held fast by a clamp. The filters itself are placed, during the drying, upon small, hollow porcelain cylin-

ders, from which they are transferred to the copper cone with the pincers. The cone is suspended in the balance like the potash-bulbs. To avoid the necessity of touching the cone with the hands, it is usually kept and carried about in a small tinned-iron cylinder. (The cones are supplied by Fr. Kieser, Goerttweite 22, Hamburg, at from 5 to 6 marks; also the porcelain cylinders.)—*Repert. der Analyt. Chem.*, 1881, 264.

New Drying-Oven.

MANY of the drying-ovens used in laboratories suffer from the defect that a temperature of 100° C. can be reached and maintained, in their interior, only with difficulty; or else, that they must be carefully regulated and watched, or that they are too expensive, or need live steam. Ernst Kirchner, of Aschaffenburg, has

Kirchner's Drying Oven.

devised an apparatus which he claims to maintain a steady temperature of 100° C., without requiring watching, and which may be heated over a kerosene or gas stove.

The apparatus consists of a three-walled copper kettle *B*, with two lateral tubes *G*, *G*, communicating with the compartment inclosed between the inner and middle shell, and intended for filling this with water, and a small faucet *H*, likewise communicating with the inner compartment, by means of which the height of the water may be controlled. The compartment between the outer and middle shell is intended for the circulation of air, which enters at numerous orifices shown in the cut (at the shoulder), and is conveyed in a highly heated condition through numerous small tubes leading from the second to the third shell in the interior of the boiler. The heated current there ascends, and passes a sieve-like shelf upon which are placed the articles to be dried. The kettle is covered by a copper lid tightly fitting by means of a felt washer. It is provided with a long chimney *D*, and a small tube for the insertion of a thermometer. It requires about 20 to 30 minutes, from the time the gas is lighted under the apparatus, if charged with cold water, to heat the air inside to 100° C., after which time it may be uniformly maintained.—*Neueste Erfind. und Erf.*, 1881, 249.

Construction of Rapid Filtering Apparatus.

A VERY simple form of rapid filtering appa-

Apparatus for Rapid Filtering.

ratus, which has been in use for a considerable time, and which we illustrate to satisfy the inquiry of a correspondent, is that here illustrated.

Two rather large flasks, of equal capacity, and both provided with a nipple near the bottom, are selected, into the neck of each is fitted a tight-fitting stopper carrying a glass tube bent at a right angle, and the nipples near the bottom are connected with a rubber tube. A third, smaller, flask with two necks is next selected, and one of the necks fitted with a tight-fitting stopper carrying a small bent tube, to which is attached a rubber tube, provided with a conveniently situated pinch-cock. The other end of the flask is provided with a stopper so perforated that it will receive a glass funnel air-tight.

One of the large flasks is then filled with water and placed on an elevated shelf, when the water will flow down to the other flask, and, if the connections are made as shown in the cut, will aspirate air through the funnel—or, if the latter is full of liquid, will cause the latter to run through quite rapidly. When the lower flask is full, it is substituted for the upper one, and the connection with the rarefied vessel transferred to it.

Cinnamic Acid as an Antiseptic.

ANTISEPTICS may be divided into two groups. The one group originates from chemical combinations, the discovery of which belongs to modern science. Their antiseptic powers were suggested by their analogy with known chemically related substances, carbolic acid being the guide. To this group belong resorcin, hydroquinone, and pyrogallol, all of the group of the phenols. To the second group belong all those remedies which, incased in useless matter, have from the earliest times played an unsuspected part in medicine and surgery, and were successful in all cases where, what we should now term antiseptic treatment, was desirable. To this group belong carbolic acid from tar, and thymol from thyme, etc. In this group also must be placed cinnamic acid. Thus cinnamon bark contains cinnamon oil which is the aldehyde of cinnamic acid, and which even in the open air is freely converted into cinnamic acid. Other aromatic drugs contain ethereal oils which frequently owe their antiseptic value to phenolates. Cinnamic acid also frequently exists in gum benzoin, mixed with benzoic acid, and as both acids are externally very similar, a good deal of benzoic acid sublimed from gum benzoin contains cinnamic acid, and it is to this that must be assigned the therapeutic advantages with which crude benzoic acid has sometimes been credited. The high price of cinnamic acid has hitherto prohibited its being used as an antiseptic in medicine, but by an invention, patent No. 2878, 1880, of Dr. Emil Jacobsen, of Berlin, the Chemische Fabrik auf Actien (formerly E. Schering), produces cinnamic acid synthetically in large quantities and at a comparatively moderate price. In scientific comparative experiments, respecting the virtues of antiseptic remedies, it has frequently been shown that cinnamic acid has antiseptic and antifermentative effects. Professor Dr. Fleck, for instance,* gives to cinnamic acid a higher place as an antifermentative remedy than to salicylic acid. Furthermore, Schwarz has shown by an experiment, respecting the antiseptic effects of a series of chemicals upon infusion of tobacco containing bacteria (see *Pharmaceutische Zeitschrift für Russland*, 1880, Nos. 20–22, and *Industrie Blätter*, 1881, page 140), that cinnamic acid is among the most effective of substances.

The physiological and chemical properties of cinnamic acid as an antiseptic are of very great value in surgery. Cinnamic acid is free from taste and odor, and is not poisonous. Unlike carbolic acid, it is not absorbed. Its solubility in water is very little (about $\frac{1}{10}$ per cent) but this is an advantage rather than not, for it is not so freely dissolved nor washed. The solubility of cinnamic acid in other substances is as follows:—1 part of cinnamic acid in 66 parts of olive oil. A solution in 50 parts of olive oil is at first clear, then after some time cinnamic acid separates. It is soluble in 40 parts of vaseline, in 66 parts of spermaceti, in 50 parts of a two-per-cent solution of borax, and in 400 parts of glycerin. In alcohol cinnamic acid dissolves very freely, and this solution is the most convenient for soaking lint, jute, etc., for the Lister bandage.

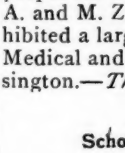
The pulverulent residue of cinnamic acid, separated after the evaporation of the alcohol, has no irritating action upon the skin.

Practical experiments on the properties of cinnamic acid made by Dr. Lemcke, in Berlin, assistant of Prof. Dr. Langenbeck, of the Royal Hospital, have been provisionally reported, and are being continued. The results of these experiments, as far as they have gone, show that cinnamic acid does not possess these drawbacks which are so undesirable is some other known remedies, while it does not lack any of those valuable properties which distinguish such valued antiseptics as carbolic and salicylic acids.

For washing wounds a solution of the freely soluble cinnamate of sodium has been applied. Whether or not cinnamic acid in the form of cinnamate of sodium also possesses antipyretic properties is now being investigated. Messrs. A. and M. Zimmermann, of Mincing Lane, exhibited a large specimen of cinnamic acid at the Medical and Sanitary Exhibition at South Kensington.—*The Chemist's Journ.*, August 19th.

Schober's Compound Gas-Burner.

THE compound burner here figured differs from all others in this, that all of its single burners may be simultaneously regulated, both as to supply of gas and supply of air, so that a quietly burning and blue flame is maintained at all times. This is accomplished by a lateral turning of the nipple upon which the tubing is attached. The mechanism is so adjusted that there is neither smoke nor soot when the flame is full, nor can it strike back into the tube when small. These burners may be had with 3 or 4 tubes. The maker's address is: Julius Schober, 44 Adalbertstrasse, Berlin, S. O.—*Zeitsch. f. anal. Chem.*, 1881, 236.



* In his pamphlet, *Benzoesäure, Carbolsäure, Salicylsäure, Zimmtsäure*, etc., München (B. Oldenburg's Verlag), 1875.

Powdered Extracts.*

BY C. S. HALLBERG, OF CHICAGO.

THE powdered extracts as found in the market are not very satisfactory, the slight exposure which they receive during dispensing being sufficient, in a short time, to render them a hard mass, more difficult to manipulate than the ordinary solid extracts.

The writer, after a number of experiments, concludes that this is due to the small percentage of admixture used. Although powdered extracts are made containing respectively 10% of admixture (sufficient of inert matter to replace the moisture lost, and such proportion of diluent as to make the extract represent a certain proportion of the drug), these apparently varied amounts will not exceed 10% of the foreign substance.

The following trials were made, with a view of determining the length of time this small percentage of admixture would prevent the extract from losing its powdered form; also, the comparative value of milk sugar and dextrin as an addition.

The extracts were properly prepared with official menstrua, carefully evaporated and dried, then powdered with milk sugar, and dextrin, respectively added.

With Milk Sugar.	*With Dextrin.*
Ext. belladonna, Alc.—10%	Ext. belladonna, Alc.—10%
" " " 20%	" " " 20%
Ext. nux vomica, " 10%	Ext. nux vomica, " 10%
" " " " 20%	" " " " 20%
Ext. opium, " 10%	Ext. opium, " 10%
" " " 20%	" " " 20%

Although these samples were put in perfectly dry bottles, securely corked, and kept in a moderate temperature, they in six months began to cake, in one year became quite hard, and by this time, eighteen months after preparation, have run into an almost solid mass. The vials in which they were contained were not uncorked. The results, coupled with observations during the last few years on powdered extracts as kept in the pharmacies, convinces the writer that the percentage of admixture is too small to make this class of any value at the dispensing counter.

The standard of strength adopted by the German Pharmacopœia (equal amount of diluent and extract) is the smallest addition practicable to produce a permanent powdered preparation, *if the solid extract should be taken as the standard of strength and not the drug, from which it is primarily obtained.* Recent experience, however, supports the theory that too great a variation exists in the yield of at least some solid extracts, and necessarily a lack of uniformity in medicinal strength, without any corresponding variation in the crude material. The following will prove as an illustration.

A lot of nux vomica was exhausted by percolation with menstrua of different alcoholic strengths, with the annexed resulting percentage yield:

Alcohol—95%	Yield of Extract—10%
" 85%	" " " 12%
" 75%	" " " 14%
" 70%	" " " 16%

A portion of the same nux vomica was exhausted with benzine, which left upon evaporation about 5% of a light greenish-yellow fixed oil, which did not show any presence of alkaloids. The drug was subsequently exhausted with 85% alcohol, the yield of extract being 4%, to which was added 6% of milk sugar and the mixture powdered. The result was a powdered extract of the strength of 10% of the weight of the drug, the usual strength of the official extract. It remained permanent as powder for nearly one year, and seems a tolerably satisfactory preparation of this troublesome extract. The nux vomica used in these operations being from the same source, the difference in yield is solely attributable to the variation in the strength of the menstrua.

The various extracts were of different colors; that obtained by alcohol of 95% being a light yellow, and then gradually assuming a darker brown shade as the alcoholic strength of the menstrua decreased and the percentage of extract increased. The extraction by the weaker alcohol was undertaken, as some authority recommends it on the ground that, while equally efficient as a solvent for the alkaloids, it would not so readily extract the fixed oil, and the percentage yield would be consequently smaller. As will be readily seen, the lastly obtained extract, with 70% alcohol, being 16% of the drug, is 75% of the strength of the extract obtained by 85% alcohol, and only 60% of the strength of that obtained by 95% alcohol. Herein lies the danger of adopting the extract itself as a standard of strength, as its medicinal action seems to be regulated by its percentage yield from the crude drug—a standard so variable as to be influenced by so small a variation in the menstruum as 5 or 10%—a lack of uniformity in the extracts of our most powerful remedies.

If so much diluent is used in the preparation of a powdered extract as to make the mixture represent 50% of the weight of the drug, these previous objections will be overcome. The diluent would be present in sufficient large quantity to retain the extract in the powdered form.

The crude drug being taken as a standard of strength, any variation in the yield of extract would not affect the strength of the powdered extract.

The objection to this amount of diluent, that it would make this class of preparations too bulky, would not be valid, as the extracts mostly used—the narcotics—would require this percentage of addition on account of their percentage yield of the crude drug. To show the relation which the yield of extract bears to

* Read at the last meeting of the Amer. Pharm. Assoc'n.

different classes of drugs and to menstrua of different alcoholic strengths, and also the proportion of diluent in a powdered extract 50% of the weight of the drug, the following table was compiled. This table contains the most usually employed in three classes.

I. CONTAINING THE NARCOTIC EXTRACTS, ALSO EXTRACTS OF DIGITALIS AND VALERIAN —(THE DRUG BEING 100).

	Percentage of Extract with Officinal Menstrua, Average Yield.	*Strength of Powdered Extract as Proposed.*
Aconite	leaves 20	50
Belladonna	" 25	50
Conium	" 20	50
Digitalis	" 25	50
Hyoscyamus	" 20	50
Stramonium	" 20	50
Valerian*	" 12	50

II. CONTAINING THE EXTRACTS OF THE MORE POWERFUL REMEDIES MADE WITH STRONG OR 85% ALCOHOL AS MENSTRUA.

	Percentage of Extract with Officinal Menstrua, Average Yield.	*Strength of Powdered Extract as Proposed.*
Cannabis Indica—	10%	50
Ignatia,	10%	50
Mandrake,	10%	50
Calabar bean,	2.5%	50
Nux vomica,	10%	50

The yield of extract of Calabar bean is the smallest in the list, and the large amount of diluent used would make the powdered extract represent $\frac{1}{20}$ part of solid extract.

III. CONTAINING THE REMAINDER OF THE MORE IMPORTANT EXTRACTS; WEAK ALCOHOL, AND IN THE LAST INSTANCE WATER BEING USED FOR EXTRACTION—(THE DRUG BEING 100).

	Percentage of Extract with Officinal Menstrua, Average Yield.	*Strength of Powdered Extract as Proposed.*
Rhubarb,	30-40%	50
Jalap (70% alc.),	25%	50
Opium,	50%	100

Extract of jalap was made with 70% alcohol, as is suggested in the National Dispensatory, which exhausts all the active principles of the drug, excluding inert matter, the yield of extract being correspondingly less.

The strength of the powdered extracts compared with the solid extracts would be in the following proportion :

In Class I. the powdered extracts would contain about one-half their weight of solid extracts.

In Class II. the powdered extracts would contain about one-fifth of solid extract; dispensed in comparatively small doses, the bulk would not be objectionable.

In Class III. the powdered extracts contain the solid extract in greater proportion, but, with the exception of extract of jalap, are not used much in the powdered form, and this would contain one-half its weight of solid extract, and correspond in strength with the extracts of Class No. I.

As the percentage yield of opium amounts to 50%, and sometimes exceeds it, it would, of course, be impossible to so dilute the extract as to conform with the standard adopted—namely, 50% of the weight of the drug. While it is true an exception is not desirable, still a powdered extract of this drug of the strength of powdered opium, would be sufficiently concentrated, and not lead to much confusion ; it would then contain 50% of the extract.

How are powdered extracts best prepared?

In discussing the preparation of powdered extracts, the writer will not make any observations on the menstrua used, or the process of extraction, but confine himself to a few remarks on the drying and powdering of the extracts.

For smaller operations no vessel has as yet been satisfactorily used. Spreading the extract on glass plates should be avoided, as well as in thin porcelain dishes, if they are considered valuable. A large shallow, enamelled iron evaporating dish is, up to the present time, the most satisfactory. The extract, when of the proper consistence, should be very thinly and evenly spread, and gentle heat applied. A water- or sand-bath can be used, but preferably the dish should be set in a drying closet, heated by means of a steam coil. When the extract becomes brittle, at ordinary temperature, it should be rapidly scraped out (during the operation care should be taken to guard against its coming in contact with damp air), and then immediately mixed with at least one-fourth the amount of the intended diluent. This mixture should then be rapidly powdered in a perfectly dry wedgewood mortar, thoroughly triturated with the remainder of the diluent, and at once transferred to perfectly dry, wide-mouth bottles, well corked, and kept in a dry, cool place. Incorporating with the extract any portion of the diluent, previous to its desiccation, should not be undertaken, with the exception of a few alcoholic extracts, to which it can be added gradually, as soon as the extract is brittle upon cooling, the heat being continued. To the extracts of Cannabis Indica and Valerian it can be added as soon as the alcohol has evaporated.

The object we try to attain, in adding any diluent to the extract, is to protect it from the air, and any agent accomplishing this purpose will also prevent the complete desiccation of the extract. On the other hand, with an extract like Valerian, the strong alcoholic menstruum rapidly evaporates, and the diluent absorbs the oil, and prevents its further volatilization.

"What is the best diluent?"

An inert soluble solid, if such a material exists. The writer has experimented with three different substances :

*The extract of valerian requires this large amount of addition, owing to the oil it contains.

Dextrin does not yield satisfactory results, probably on account of its agglutinizing property.

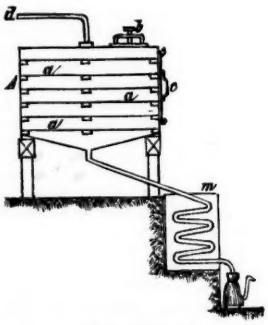
Milk sugar has been used quite extensively, and answers the purpose probably better than anything that has been tried; it has the advantage of being considerably soluble in water and tasteless. Consisting of hard crystals, it serves to comminute the extract and form a homogeneous powder.

Rice flour has been used to some slight extent, and preserves the extract in its powdered form, but, on account of its smooth nature, does not make a very uniform mixture.

The dried salts of sodium, sulphur, etc., have recently been suggested, but have not been used by the writer.

Apparatus for Distilling Essential Oils.

THE square box *A* contains a number of metallic perforated diaphragms, upon which are placed —through the door *C*, which may be closed hermetically—the plants or materials which are to be distilled. Steam is admitted through the pipe *d*, and penetrates the material by a down-



Melnikoff's Still.

ward current, passing on to a cooler *m*, where it is condensed, and from which the condensed liquid runs into a Florentine flask, where the oil is separated. This apparatus has been devised by M. Melnikoff, in Odessa, and has been found very efficient in practice, according to a report contained in the Journal of the Russian Agricultural Society (1880, p. 80).—*Dingler's Polyt. Journ.*, vol. 239, 233.

Pilocarpine.—P. CASTAING confirms the results obtained by Harnack and Meyer, concerning the existence of two alkaloids in jaborandi, as well as the constitution of the more important of the two, namely, pilocarpine. Kingzett, who had first analyzed pilocarpine, had arrived at different figures; but Castaing obtained the same as did Harnack and Meyer. Accordingly, the formula of pilocarpine is $C_{22}H_{16}N_2O_4$; and if the nitrate of pilocarpine is washed with absolute alcohol, it is rendered entirely free from the accompanying alkaloid, jaborine.—*Rép. de Pharm.*, Sep.

RECENT PAPERS.

Sumatra Camphor.—Among the most important articles brought down in large quantities by the independent Battaks in Sumatra from their forest-clad mountain, and which are to this day mostly exported to Singapore, are benzoin, gutta percha, rattans, and camphor. The camphor of Baros, as the special camphor obtained from *Dryobalanops aromatica* is called, is renowned throughout all Netherland India.* It is distinguished by its peculiar strength and a relatively trifling amount of volatility. Under similar conditions a given quantity of Baros camphor loses by evaporation only a fourth part of its weight in the same time that as large a piece of Japan camphor wholly evaporates. Hence the former is an article in great demand, and realizes high prices, fetching not unfrequently in Singapore 10,000 guilders per picul. Especially amongst the wealthy Chinese there it is greatly in demand for embalming the bodies of their relatives whom they send to China for burial in their native land. It is found in small crystallized pieces and thin layers amongst the fibres of the wood, and is usually offered for sale in that condition after removing the coarser woody particles and other foreign matter. Trees containing a large quantity of camphor are rare. In most of the trees it is distributed so sparingly that it can only be extracted by boiling, as is the case with Japan camphor. The Battaks are very skilful in discovering the trees in which the camphor abounds, as they dislike the slow boiling process. They likewise have in view the gaining of as much profit as possible in the shortest possible time, in order afterwards to enjoy a longer rest. The wood of the Dryobalanops is largely used for making boxes, and also generally as timber. That the people are not sparing with it is apparent from the fact that the great bridge over the Batang Taro River now under construction is wholly made of this wood. Although not particularly hard, it is of great use for building purposes, because many species of insects—the white ant being the most dreaded, which in these districts manage to destroy all other kinds of wood with wonderful rapidity—leave the camphor wood untouched. Both the wood and leaves have a strong smell of camphor.

The writer of the notice of which the foregoing is an abstract concludes with the following general remarks on the wasteful use of this wood and on the other products of Sumatra previously alluded to. He says: "It is a pity, however, that the natives living in the midst of this bountiful gift of nature are using it up so carelessly that if they are not in time brought under control an end will soon come to this productiveness. At present the dense forests of Battak land still contain hundreds of thousands of camphor trees, but the Battak cuts away recklessly without a thought of the future and without planting fresh camphor trees. In the same way an end will soon come to the present large stock of gutta-percha in the Sumatra forests. What is found most abundantly in these districts to the east of Baros and Singkel is the valuable benzoin, the fragrant resin that is used for incense and other perfumes. I saw astonishing quantities of it in the Chinese warehouses at Baros. In hundreds of cases this article is shipped to Singapore, that centre of the trade of the far East. The benzoin is bought unprepared from the Battaks, usually at 1.40 guilders per catty. The scent of this gum is very agreeable, and it is a pleasure to stay in the storehouses where it is assorted and then carefully packed after being plentifully sprinkled with water. Remarkably enough the Battaks take great care that other benzoin trees shall rise up to replace those cut down, for in fact they have nothing else to do than to burn the stumps and scatter the seeds in the ground. The planting of gutta and camphor trees appears to require more trouble and care, more at least than is compatible with human labor and duty in the opinion of the Battaks."

* On Barus or Borneo Camphor see particularly *Pharmacographia* [2], 516.

Semi-Annual Commercial Report on Drugs and Chemicals.

(FROM THE SEPTEMBER "HANDELSBERICHT" OF GEHE & CO., DRESDEN.)

Amyl Nitrite.—This preparation is now frequently used as an antidote against excessive chloroform narcosis, and [because it counteracts the risk of syncope from the latter] is often added to the chloroform itself, before the latter is administered.

Amyl Nitrate has been used successfully, by inhalation, as a remedy against intermittent fever, according to Dr. Launders, of Indore (India). The copious perspiration which it causes is said to terminate the fever attack quite rapidly.

Atropine.—The introduction of the artificial alkaloid homatropine has not diminished the consumption of the former.

Balsam of Copaiva.—Genuine Maracaibo is scarce; but large amounts of Angostura reached Hamburg, and it is probable that this kind often passes as Maracaibo. "East Indian copaiva" (so-called; more properly "wood-oil") is now regularly shipped to England in much better quality and better packed than formerly.

Benzoic Acid.—The price of natural benzoic acid (from benzoin) declined about 15% during June last, chiefly on account of the smaller demand for it, and because the artificial toluol-benzoic acid is now furnished at a low price and in a purer and handsomer state than formerly.

Bromine.—The German manufacturers fix their prices generally according to the American quotations. At present, German bromine rules a trifle higher than imported (American) bromide of potassium.

Calcium Lactophosphate is largely in demand, and appears to have become a favorite remedy in the treatment of diseases of children.

Caffeine.—Without going into the merits of the respective statements as to the non-existence or instability of the *citrate*, Gehe & Co. assume that the *small percentage* of citric acid, 3 to 4 per cent,* is desired by the physician to render the action of the alkaloid somewhat milder, on the same principle as lemon-juice is added to tea in Russia and some other countries which consume tea largely.—Gehe & Co. add that they have a considerable supply of *hydrobromate* of caffeine in large, transparent tabular crystals, about 3-4 centimeters in diameter.

Capsules, Elastic.—The occasional complaints, that capsules sometimes become opaque, arise from the fact that they have not been preserved in a sufficiently dry place. To restore them to their former transparency, it is only necessary to dry them in a moderately warm place.

Carmine.—Gehe & Co. state that a recently published alleged improvement in the manufacture of carmine, which consists in first depriving cochineal of its fatty matter, has been known to them and used by them for more than ten years.

Chloral.—Another small advance in price has taken place, and its consumption is still increasing. Dr. Dimitrieff has found a two-per-cent solution to promote rapid healing in the treatment of malignant wounds.

Butyl Chloral (or Croton chloral), which is chiefly used as an anodyne in neuralgia of the facial nerve, has been in better demand.

Cinchona Bark.—After the brisk demand from the United States for quinine during last December, the alkaloid advanced in price and remained so until April. Up to this time the European quinine manufacturers were fully occupied, and the supplies of bark about equalled the consumption. But when the arrivals of Colombian bark began to increase [Germany imported during the first six months of 1881 10,483 metric quintals, against 6,991 metric quintals in the corresponding period of 1880], and the demand for quinine became less, a German manufacturer lowered his price 10%, which was soon followed by Howard, and again caused an increased demand from New York. The attempts made by the American speculators, who still had a higher-priced winter stock on hand, to drive the market upwards failed, in consequence of the small demand for quinine from the West and of the large arrivals of bark in London. The latter circumstance depressed both the price of barks and that of quinine, but this again produced a more brisk demand, and the market has been quite firm during July and August.

The importers of Calisaya, Colombia, and Carthagena barks have, up to the present, nearly always obtained the high prices they demanded, and have only been compelled, as it were by force, to yield to the pressure exerted by the arrivals of high-grade East Indian and Ceylon barks, which always find prompt purchasers. Considerable quantities of bark have also arrived lately from Madras, both from private and from government plantations (Ootacamund and Mungpo). Of Java barks there were sold by auction, on July 12th, in Amsterdam, 109,080 lbs., fetching high prices as usual. Among the latter were lots of Ledgeriana containing 8% of quinine. Regarding the export of Colombia, it may be added that there were shipped from Sabanilla, during 1880, 55,191 bales (of which 27,551 went to England, 7,353 to France, and 19,794 to New York), weighing 3,311,460 kilos, and of the value of $2,759,550.

During the past year a new kind of cinchona bark was discovered in the neighborhood of Buccaramanga, Province of Santander (United States of Colombia), which contains about 2% of quinine, and is free from all other alkaloids. This bark was brought into the market under the name "Cuprea" bark. Reports from Colombia state that two rival companies, with about 1,700 laborers, are working these districts. It is estimated that a laborer is able to collect daily 20 lbs. of fresh bark; 7 lbs. of fresh yield 3 lbs. of dry bark; hence the 20 lbs. of fresh yield 8.57 lbs. of dry. The daily production of 1,700 laborers is therefore, on the average, 14,569 lbs., which amounts in thirty days to 437,070 lbs. or about 4,000 bales, à 110 lbs. At first these reports were considered to be exaggerated, but time has shown them to be correct, since the calculated quantities of supply are even somewhat less than the actual arrivals. This cuprea bark represents about one kilo of quinine per bale.

Citric Acid.—Gehe & Co.'s recrystallized acid is guaranteed to be free from lead, which is not always the case with the commercial article.

Duboisine (which is identical with hyoscyamine, according to Ladenburg) has been less in use than formerly. The "crystallized duboisine" of Gerrard has also been prepared by Gehe & Co. Sulphate of duboisine is extremely deliquescent, and can only be sold in sealed tubes containing a definite quantity.

Ergot, powdered.—It seems to be now conceded by competent observers that, if ergot is deprived of its oily matter before being powdered, it may be preserved for a long time in form of powder. [The extraction of the fatty matter from ergot, previous to percolation, would prevent the annoying circumstance—sometimes encountered—of a separation of oily, fatty, and resinous matter from the fluid extract.]

Glycerin.—This article has played an important rôle among chemicals during the last few years. Since the beginning of 1881 it has risen about 100% in price, and the end is evidently not yet. The other products which are obtained at the same time with glycerin, namely, stearic and oleic acids, have become so cheap that there is no longer a rational relationship between them and glycerin. In fact, the substance which at one time was almost a useless waste-product, has now become the important factor, and the former chief products have now become a veritable "drug" on the market. As long as it will be impracticable to recover the glycerin from the waste lyes of soap-works, or to discover another body which will answer for gas-meters, just so long it will be impossible to resist a further advance of the price. For the principal use of glycerin, namely, the manufacture of nitroglycerin, the high price is of no importance. (It is

* It will be noticed that this percentage is far from being sufficient to form a true "citrate."

said that dynamite exported to San Francisco fetches there *ten* times the price of the article at Hamburg.) France produces annually about 4,500 000 kilos, and Russia 40,000 pud of crude glycerin. Germany cannot produce the crude material any longer, on account of the prohibitory tariff on imported fats, but crude glycerin being free from duty, many factories are engaged in its purification. For cosmetic and medicinal purposes, the consumption of glycerin is decreasing.

Insect Powder.—Dalmatian flowers have yielded a very rich harvest this year, not less than 150,000 kilos having reached Trieste in July last. Prices have, therefore, considerably receded, except for the really *wild* mountain flowers, which only came down to 150 florins (per cwt.), but are held at higher prices lately, since scarcely 10,000 kilos were collected. *Persian* flowers are scarce and dearer than the Dalmatian, which latter are gradually displacing the former.

Jalap.—In the gardens of Ootacamund, in India, experiments have been made to study the conditions under which jalap may be cultivated, and the results are said to have been quite favorable. The Indian government offers to those who desire to grow jalap, the free supply of the required tubers. Still it is doubtful whether the cultivation would be profitable in view of the fact that the demand for jalap is but moderate at present; besides it is not unlikely that cultivated jalap will turn out inferior to wild-grown; at least the samples in Gehe & Co.'s possession contain 20 per cent less of resin than Mexican jalap.

Muscarine.—This substance, the alkaloid of the *Amanita muscaria* Pers.; *Agaricus muscarius* L., is said to have proved highly effective in the treatment of excessive night-sweats.

Napthol.—The β-hydroxyl of naphthalin has recently been introduced as a remedy in certain skin-diseases, and particularly in itch, with good success. It is moderate in price, and has been used in considerable quantities. Professor Kaposi, of Vienna, ascribes to a 10% alcoholic solution, or to a 15% naphthol-salve, all the good qualities of tar, without the defects of the latter. *Care is to be taken, however,* not to bring the substance in contact with open wounds, as this is apt to be followed by symptoms of poisoning.

Oil of Lemon.—Owing to the large percentage of inferior fruit for export, the production of oil of lemon has been very large. This yield is still further increased through the successful development of a large number of fresh plantations, started some twenty years ago, when many lemon-trees were destroyed by a peculiar disease. The new trees are now at their best age, and there is almost an over-production. In addition to this, the adulteration of the oil is now carried on on a large scale, and it is said that each territory has its own peculiar standard of mixture.

Oil of Rose.—This year's distillation at Kazanlik and vicinity has been very productive, the yield being nearly 400,000 meticals (1 metical = 4.8 grams), against 320,000 during 1880. Nevertheless, nearly seven-eighths of the yield is already in the hands of dealers at Constantinople, and the price is not likely to decline.

Opium.—After the small opium harvest in Asia Minor, during 1880, which only amounted to 2,500 baskets (*couffes*), the price for good Yerli, at Smyrna, became stationary at 230 piasters per tcheki. But from November a decline took place, because Persian opium was lower, and during the middle of March of this year, Yerli ruled at 210 p. = 22*s.* 6*d.* per pound. The New York syndicate for opium speculation endeavored to further diminish the Smyrna stock of about 300 baskets by continued purchases, in order to maintain the price, if possible, to the time of the new harvest. But the reports of the prospects for the new crop were so favorable that the yield was estimated at 9,000 baskets already in April, later at 10,000, and at present may be reckoned at 12,000 baskets—which yield was mainly owing to seasonable rains and the non-appearance of hot winds during the collection. Such a rich opium harvest is almost unparalleled in Asia Minor, and it is not surprising, therefore, that the prices have rapidly declined. Holders of Yerli and Karahissar wanted to get rid of their stock, about April, at 180 to 175 piasters; but whatever was bought up for New York and on account of the Dutch Government, was made up by further supplies from the interior. At the end of April no purchasers could be found even at 170 to 160 p.; and about the middle of May the decline was arrested at 145 to 100 p. for a time. In the beginning of June considerable sales of Karahissar took place for 140 p., and of finest Boghaditch for 165 p. The latter was, however, soon afterwards sold at 125 to 120 p., and after the appearance of new crop during the second half of June, Yerli declined to 120, in July to 110–108 p. (equivalent to 12*s.* per pound), Karahissar to 107, Boghaditch to 115 p. About the middle of August already 2,800 baskets of the new crop had reached Smyrna (against 555 in 188 and 998 in 1879). At the same time the sales were considerable both for New York and China. The former will take large quantities from the market. No credence is given to the report that the New York syndicate is going to dissolve, the large purchases alone proving the contrary. China was a large consumer of Smyrna opium before 1868; but, probably in consequence of the high price compared with Indian opium, it gradually ceased to use the former. Much will now depend on the question, whether the Chinese will again acquire a taste for Smyrna opium, if so, several thousand chests are likely to be exported there; and, as the more opulent holders in Asia Minor and in Turkey will hold back about an equal quantity, it is not thought probable that Yerli will decline to 100 p. Indeed the large orders received during the second half of August have already driven prices upwards by 8–10 piasters, Guévé being held in Constantinople about 1*s.* 6*d.* higher per pound, while Bei Bazar and Malatia are but little dearer. According to all appearances, the lowest season of the market is past; nor has opium been so cheap for thirty years, and even a large harvest in Persia will only influence the *second* quality, which is used by morphine manufacturers, and which found a brisk sale at Smyrna for 85 to 90 p. *A good deal of the second quality is now shipped to the United States, it is said, for the purpose of adulterating and cheapening first quality.* In general, the quality of this year's crop may be pronounced very good.

Papaya.—Carica Papaya, and the substance papayotine prepared from it, attract a great deal of attention among practitioners, on account of their great digestive properties. The dried leaves of Carica Papaya are unsuited for the preparation of papayotine; it is necessary to use *fresh* leaves.

Pelletierine Tannate is constantly increasing in favor as a sure remedy for tape-worm.

Potassium Bromide—American competition is constantly striving to underbid German manufacturers by 5 to 10 per cent, and it cannot be denied that the American salt is at present much purer than formerly.

Quebracho Bark continued in good demand, in substance as well as in form of extract and tincture. The alkaloid aspidospermine was but little in use.

Santonin.—The price of this article remains extremely low and unprofitable, owing to very large supplies of Levant worm-seed, and to extremely large stocks of santonin accumulated in the markets of Eastern Asia, particularly in Japan, where the article has its largest consumption. To fish-eating nations, santonin appears to have become as great a necessity, as quinine to the inhabitants of swampy districts.

Sodium Benzoate.—The difference in price between the benzoate made from benzoin-benzoic acid and that made from toluol-benzoic acid is quite considerable now, *and the latter is therefore more in demand than the former.*

Tonka Beans.—Most of this year's crop from Angostura has again found its way to New York. In consequence of this the Continental market has mostly to fall back upon Surinam tonka beans, which are much smaller,

but likewise "crystallized." As is well known, tonka beans are the seed (ripening in April) of *Dipterix odorata* W., native of South America. The seeds are moistened with rum and packed into casks, and put in a warm place, wheir their peculiar perfume is developed by the "crystallization" of cumarine. Pará tonka beans were not so treated heretofore; but it is said now, that the tonka at present exported from Surinam, is nothing else than "crystallized" Pará tonka.

Analysis of Public Water Supplies.

(Instructions for water analysis in England, prepared by a Committee appointed by the Society of Public Analysts.)

(Continued from page 275.)

1. Collection of Samples.—All samples of water for analysis must be collected in stoppered glass bottles which have been cleaned by successive rinsings with acid and water. A Winchester quart will suffice, stoneware bottles must not be used. Each bottle must be filled with water to be sampled, and emptied before the sample is taken for analysis. The bottle must then be filled to the neck, stoppered, and tied down.

Each report should specify the place where, and the date and time when the sample was drawn. Wherever practicable it is desirable to report the temperature of the water *at the time the sample was taken*, and also to observe whether the water when collected is clear or not. For an accurate analysis of a public water supply it is essential that the sample should not be drawn from a cistern; a public stand-pipe, cab-rank, or fire hydrant, is generally the most satisfactory place from which to take a sample; but, failing this, the ball-cock of a cistern is a permissible source. It is desirable to avoid drawing stagnant water from a pipe or dead main, and it is especially necessary to avoid aërating the water in the act of filling the bottle.

2. Appearance in Two-Foot Tube.—The color or tint of the water must be ascertained by examination in a tube two feet long and two inches in diameter. This tube should be made of glass as nearly colorless as may be, and should be covered at each end with a disc of perfectly colorless glass cemented on, an opening being left for filling and emptying the tube. This opening may be made either by cutting a small segment off the glass disc at one end or by cutting a small segmental section out of the tube itself before the disc is cemented on. These tubes are most conveniently kept on hooks in a horizontal position to prevent the entrance of dust. The tube must be about half filled with the water to be examined, brought into a horizontal position level with the eye, and directed towards a well illuminated white surface. The comparison of tint has to be made between the lower half of the tube containing the water under examination, and the upper half containing atmospheric air only.

3. Smell.—Put not less than three or four ounces of the water into a clean eight-ounce, wide-mouth stoppered glass bottle which has been previously rinsed with the same water. Insert the stopper and warm the water in a water-bath to 100° F. (38° C.). Remove the bottle from the water-bath, rinse it outside with good water perfectly free from odor, and shake it rapidly for a few seconds; remove the stopper, and immediately observe if the water has any smell. Insert the stopper again and repeat this test.

When the water has a *distinct* odor of any known or recognized polluting matter, such as peat or sewage, it should be so described; when this is not the case, the smell must be reported simply as "none," "very slight," "slight," or marked, as the case may be.

4. Chlorine.—This is to be calculated as chlorine, and returned under the heading of "Chlorine in Chlorides."

Titrate at least 100 *cc.* or 1,400 grains of the water with the standard silver nitrate solution, either in a white porcelain basin or in a glass vessel standing on a porcelain slab, using potassium chromate as an indicator. The titration is conducted as follows: the sample of water is measured into the basin or beaker, and 1 cc. or 15 grains of potassium chromate solution added. The standard silver nitrate solution is then run in cautiously from a burette until the red color of the precipitated chromate of silver, which is always observed at the point where the silver solution drops in, is no longer entirely discharged on stirring. The burette is then read off. It is best to repeat the experiment as follows: Add a few drops of dilute sodium chloride solution to the water last titrated, which will discharge the red color. Measure out a fresh portion of the water to be titrated into another basin and repeat the titration, keeping the first sample, the color of which has been discharged, side by side with the second, so as to observe the first permanent indication of *difference* of color. If the quantity of chlorine be so small that still greater accuracy is necessary, the titration may be conducted in the same way as last described, but instead of the operator looking directly at the water containing the chromate solution, he may place between the basin containing the water and his eye a flat glass cell containing some water tinted with the potassium chromate solution to the same tint as the water which is being tested, or may look through a glass coated with a gelatin film colored with the same salt. Care must always be taken that the water is as nearly neutral as possible before titration. If originally acid it should be neutralized with precipitated carbonate of calcium. If the proportion of chlorine be less than 0 5 grain per gallon it is desirable to take a larger quantity of the water, say 250 *cc.* or 3,500 grains for the estimation, and to concentrate this quantity on the water-bath before titrating it so as to bring it to about 100 cc. or 1,400 grains. This titration may be performed by gaslight.

5. Phosphoric Acid.—This is to be returned under the heading of "Phosphoric Acid in Phosphates." The ignited total residue, obtained as hereafter directed, is to be treated with a few drops of nitric acid and the silica rendered insoluble by evaporation to dryness. The residue is then taken up with a few drops of dilute nitric acid, some water is added, and the solution is filtered through a filter previously washed with dilute nitric acid. The filtrate, which should measure 3 cc. (or say 50 grains) is mixed with 3 cc. of molybdic solution, gently warmed, and set aside for fifteen minutes at a temperature of 80° F. The result is reported as "traces," "heavy traces," or "very heavy traces," when a color, turbidity, or definite precipitate are respectively produced, after standing for fifteen minutes.

6. Nitrogen in Nitrates.—This should be determined by one or other of the following processes, viz., *Crum*, *Copper-zinc or Aluminium*. Analysts should report which process is employed.

Crum Process.—This should be carried out in a Lunge's nitrometer* as follows:—250 cc. or $\frac{1}{16}$th gallon of the water must be evaporated to a small bulk, the chlorine precipitated with solution of silver sulphate, filtered and concentrated in a basin to 2 cc. or 30 grs. measure. A Lunge's nitrometer is charged with mercury, and the three-way stop-cock closed, both to measuring tube and waste pipe. The concentrated filtrate is poured into the cup at the top of the measuring tube, and the vessel which contained it rinsed with 1 cc. of water, and the contents added. The stop-cock is opened to the measuring tube, and, by lowering the pressure tube, the liquid is sucked out of the cup into the tube. The basin is again rinsed with 5 cc. of pure strong sulphuric acid, and this is also transferred to the cup and sucked into the measuring tube. The stop-cock is once more closed, and 12 cc. more sulphuric acid put into the cup, and the stop-cock opened to the measuring tube until 10 cc. of acid have passed in. The excess of acid is discharged, and the cup and waste pipe rinsed with water. Any gas which has collected in the measuring tube is expelled by opening the stop-cock and raising the pressure tube, taking care no liquid escapes. The stop-cock is closed, the measuring tube taken from its

* Figured and described in NEW REMEDIES, 1879, p. 230.

clamp and shaken by bringing it slowly to a nearly horizontal position and then suddenly raising it to a vertical one. This shaking is continued until no more gas is given off, the operation being, as a rule, quite complete in fifteen minutes. Now prepare a mixture of one part of water with five parts of sulphuric acid, and let it stand to cool. After an hour, pour enough of this mixture into the pressure tube to equal the length of the column of acidulated water in the working tube, bring the two tubes side by side, raise or lower the pressure tube until the mercury is at the same level in both tubes, and read off the volume of the nitric oxide. This volume expressed in cc.'s and corrected to normal temperature and pressure gives, when multiplied by .175, the nitrogen in nitrates, in *grains per gallon*, if 250 cc. of the water have been used. According to some authorities the precipitation of the chlorides is not necessary.

Copper-Zinc Process.—This must be carried out as follows:—A wet copper-zinc couple is prepared by taking a piece of clean zinc foil, about 3 in. by 2 in., and immersing it in a solution of copper sulphate, containing about three per cent of the pure crystallized salt. A copious and firmly adherent coating of black copper is speedily deposited upon the surface of the zinc, which must be allowed to remain in the solution until the deposit is thick enough, but not for too long a time or it will become pulverulent and not adhere firmly to the zinc—three or four minutes will generally be sufficient.

The zinc coated with copper must then be removed from the solution, which may be bottled for subsequent use, and the couple thoroughly washed first with distilled water, and finally with the water to be analyzed, in order that this may replace the adhering distilled water. It is then put into a clean six or eight-ounce wide-mouth stoppered glass bottle and covered with the water to be analyzed, which may be three or four ounces or more in quantity. If the water be very soft a small addition, say one part per 1,000, of sodium chloride, will accelerate the reaction. The stopper must then be inserted in the bottle and the water allowed to remain over night in a warm place. If still greater speed be necessary, the temperature may be raised to 90° or 100° F. (32° or 38° C.). With hard water it is preferable to add a small quantity of pure oxalic acid to precipitate the lime and quicken the reaction. On the following morning, the conversion of the nitrates into ammonia will be complete, and the proportion of ammonia formed must be estimated in one of the two following ways, according to the character of the water.

If the water be sufficiently tinted to show a perceptible color in the Nessler glass, or if it contains magnesium salts or other substances capable of being precipitated by the Nessler reagent, a measured portion of the sample after treatment with the copper-zinc couple must be distilled and the distillate nesslerized as hereafter described. If the water is not tinted, and does not contain any other substance that would interfere with the delicate action of the Nessler reagent, it may be nesslerized direct. It will sometimes be necessary to dilute the water considerably before nesslerizing in order to enable the reading to be accurately taken. Ammonia found must be calculated to *nitrogen*, and not to ammonia, as in the nesslerizing of the ammonia distillates. The nitrogen, present as ammonia, must of course be deducted from the proportion found.

If any doubt exists as to the completion of the reaction, this may be ascertained by testing for nitrous acid, by adding a small quantity of a solution of metaphenylene diamine to a portion of the fluid acidified with sulphuric acid. A yellow color will be produced in a few minutes if nitrous acid be present. If none be present the reaction is complete.

Aluminium Process.—This is carried out as follows:—50 cc. or 1,000 grains of the water are introduced into a retort, and 50 cc. or 1,000 grains of a 10 per cent solution of caustic soda, free from nitrates, added. If necessary, the contents of the retort should be distilled until the sample is free from ammonia. The retort is then cooled and a piece of aluminium foil introduced into it. The neck of the retort is inclined upwards and its mouth closed with a perforated cork, through which passes the narrow end of a small chloride of calcium tube filled with powdered pumice or glass beads wetted with very dilute hydrochloric acid free from ammonia. This tube is connected with a second tube containing pumice stone moistened with strong sulphuric acid, which serves to prevent any ammonia from the air entering the apparatus, which is allowed to stand in this way for a few hours or over night. The contents of the first absorption tube—that next the retort—are washed into the retort with a little distilled water free from ammonia, and the retort adapted to a condenser. The contents of the retort are distilled to about half their original volume. The distillate is collected and an aliquot part nesslerized; and, if necessary, the rest of the distillate is diluted, and an aliquot part again nesslerized as hereafter directed.

[To be Continued.]

Precipitates in Fluid Extracts.—J. U. LLOYD, of Cincinnati, read before the American Pharmaceutical Association at its last meeting a paper on the above subject, in which he first reviewed the opinions heretofore advanced by others, respecting the causes of the constant occurrence of precipitates in fluid extracts. The principal causes to which this precipation has been ascribed are oxidation, change of solvent power of the menstruum by evaporation, change of temperature, chemical change, and light. Prof. Lloyd then proceeded to sum up and to advance his own theory, which is, in brief, that precipitates from this class of preparations follow physical rather than chemical laws, and are due to such forces as diffusion, the motions of currents, and the influence of varying solvents.

If a mixture of alcohol and water be used through the entire process of percolation, the menstruum which holds the solid matters in solution is not simply dilute alcohol as commonly supposed; and the dissolved matters of a percolate differ in composition and in general properties at various stages of the process, as when, in the case of bodies containing gum-resins or gums and resins, the later portions of the percolate will become rich in bodies which were but slightly extracted by the first part of the menstruum. The percolate is, therefore, a mixture of a number of different solutions, instead of a simple solution.

When powdered drugs containing water in any proportion are submitted to percolation, the first part of the percolate carries the water, and consequently differs from the latter portion in actual alcoholic composition, even though one menstruum is used throughout. As a result, the first portions often contain, of gums and bodies more soluble in water than in alcohol, larger amounts than the last portions can dissolve; and the last portions may contain a larger proportion of resins, oils, and other bodies less soluble in a dilute alcoholic menstruum. Thus we find that when percolation is conducted according to the accepted ideas of the present day, the dissolved materials in the first part of the percolate, and which are much less soluble in a stronger alcoholic menstruum, may be so great as to be partially insoluble in the entire mixed percolate. This rule applies likewise to the resinous and fatty substances which are often held in solution by intermediate or other parts of the percolate in larger proportion than it is possible to dissolve in the mixed percolate. As a consequence, after the full percolate is mixed, a gradual separation of each of these classes of substances follows. Naturally, therefore, such an entire percolate is not a single body (as it is obtained), but a mixture of percolates, each of different alcoholic strength. They cannot be separated by any sharp line of demarcation, but are dovetailed together, passing continuously from one to another. It is safe to argue that under these circumstances, if the entire percolate be divided into small portions as it passes, the aggregate amount of precipitate will be less than if the several portions are mixed, or

that the precipitate will form more slowly. This is a fact, for in practice the first part of a percolate, and the last part, if kept separate, will each for a time hold its dissolved matters more perfectly than if the entire percolate be mixed, or than if equal parts of the first and the last of a percolate be mixed.

A second class of precipitates which appear to form in greater abundance in proportion to the care used in carrying on the process of percolation, and which is a source of much trouble, is explained by Mr. Lloyd, as follows:

From the moment our menstruum enters the powder, it commences to dissolve matters that are soluble in that menstruum. This forms at once a *new menstruum*, and which has the power to dissolve substances that are only partially soluble in the original menstruum. As this liquid percolates through the powder, it takes up more and more of the matters which are very soluble in it, and becomes an increased (or occasionally decreased) solvent for substances which the original menstruum could scarcely dissolve. These various bodies in solution alter the solvent power of the menstruum to such a degree as to enable it to dissolve substances which may be perfectly insoluble in the original menstruum. In this manner resins and oils may be dissolved to a more or less extent in water menstruum, although the purified resin or oil may be practically insoluble in water; and often we may obtain from a watery extract by simple agitation with solvents such as carbon disulphide, substances in considerable amount that are perfectly insoluble in water. Thus it is that during the operation of percolation a constantly changing menstruum is passing through the powder, even though the original menstruum be unchanged. The percolate, in accordance, is variable in composition and in solvent powers, even if it be spoken of as though it be one menstruum. In reality, the percolate is an association of solutions in which there is seldom a line of demarcation. By agitation we mix these solutions and a new menstruum results. An equilibrium is established as far as the proportion of liquid and solid matter is concerned, but *not* an equilibrium as regards the solvent action of the new liquid. Upon the contrary, a strain (tendency to precipitate) is placed upon certain bodies that were either freely dissolved by the first part of the percolate or by the latter portion. It may be that some of these substances are at once precipitated, or that more or less time is required before they separate.

Some time is often required before bodies separate from solution that refuse at the same temperature to redissolve in the liquid from which they were separated. Even with some solutions of definite chemicals, a precipitate, as is well known, refuses to form until the vessel is permitted to stand a certain length of time. Occasional stirring is required, or the operation may under certain conditions (especially with certain crystalline salts) be hastened by rubbing the inside of the vessel with a rod. In like manner the substances which are rendered insoluble by the mixing of the percolate are not necessarily at once cast down. They may continue to separate during a greater or less period of time, and from these bodies alone a series of precipitates result.

Thus, as these bodies separate, the menstruum actually changes, and as it changes in composition, substances which were readily dissolved by the original liquid become insoluble. These separate gradually, and as they separate alter the liquid, and bodies which were soluble become insoluble in the new solution, and separate. Thus, apparently, by a series of steps, the percolate changes in composition and in solvent powers, each change being followed by the precipitation of certain substances. In reality, the process is almost continuous and often without a line of demarcation, although usually sediments differ in appearance and in composition at various stages of their growth as the different classes of bodies precipitate, often forming in distinct stratums. In consequence of the foregoing we find that a percolate may be filtered or decanted from time to time, and in each case a sediment will be obtained.

Reasoning from the foregoing, it should follow that if portions of the extremes of a percolate be mixed, greater immediate precipitation should result than is the case with similar parts of the extremes unmixed. This is upon the principle that the greatest difference in composition is found in the extremes of a percolate, and as a consequence the greatest change in equilibrium as to solvent power of the solution must be from mixtures of the extremes. Often the mixture becomes at once opaque and immediately throws down a precipitate. Sometimes a precipitate follows in a few hours, while like amounts of the extremes preserved separate remain for days unchanged.

It does not seem probable that we shall ever, by percolation alone, succeed in making a line of permanent fluid extracts from dry plants. The most important of steps, then, is to adapt our menstruum so that it may hold in solution the *medicinal* principles of each plant, and thus render the precipitate which forms inert; for the precipitate *will* follow.

Note on Sulphuretted Hydrogen.—P. CASAMAJOR has found that sulphide of iron, which is often met with of a condition in which it refuses to decompose promptly by contact with acids, may be readily decomposed by a voltaic action produced by contact with other metals. He says: "After a few trials, I was able to obtain an abundant supply of sulphuretted hydrogen from any sample of sulphuret of iron by proceeding as follows:—Enough mercury is put into a bottle to cover the bottom entirely. Over this diluted sulphuric acid is poured, and some pieces of zinc are thrown in, which immediately sink into the mercury, forming a zinc amalgam with great excess of mercury. No action takes place between the zinc and the acid. If, now, a few pieces of sulphuret of iron are thrown in the bottle, they will sink to the mercury, and a copious production of sulphuretted hydrogen will take place from the surface of the sulphuret. This production will continue with remarkable regularity until either the zinc, the sulphuret of iron, or the sulphuric acid is exhausted. As to the mercury, it only intervenes indirectly in the reaction, and it does not require to be renewed.

In place of sulphuret of iron, I have tried galena, iron pyrites, and copper pyrites. These all give sulphuretted hydrogen, but very slowly. With galena, the action soon ceases, as the mineral becomes coated with sulphate of lead. By leaving galena in contact with liquid zinc amalgam for several hours, the surface of the mineral becomes coated with a bright coat of lead amalgam.

With iron and copper pyrites, comparatively little sulphuretted hydrogen is given off, but there is a considerable production of hydrogen. In this case the sulphurets act mainly as conductors, in the same manner as a piece of retort carbon.—*Chem. News*, July 22d.

Resorcin causes poisonous symptoms in doses of more than six grams. According to Andeer, sublimed resorcin has much less toxic properties. He asserts that it has not merely an antiseptic, but also a slightly caustic action upon mucous membranes, and does not give rise to a slough, the epithelium being regenerated in two or three days. He has employed it with advantage for the purpose of washing out the stomach in gastric catarrh and dilatation. It seems to possess certain hæmostatic actions, chiefly efficacious in capillary hemorrhages. Soltmann has employed it in ninety-one cases of infantile "cholera," of which seventy-four were cured, and asserts that, putting aside three cases in which death occurred from grave complications, the use of the drug reduced the mortality from this disease in his practice from 34 to 15 per cent. It quickly arrests vomiting, even in small doses, and restrains the diarrhœa, without tending to cause the collapse by the toxic symptoms which result from the use of even small doses of carbolic acid. It is readily taken by children. The stomach and intestines rapidly regain their functional energy. He gave it to children under a year in a dose of one to three grams in sixty grams of infusion of chamomile.

NOTES, QUERIES AND ANSWERS.

Under this heading we shall, to the best of our ability, endeavor to answer such questions addressed to us, as come within the scope of this journal, provided they are accompanied by the name and address of the writer. Answers to queries received after the 5th of the month will lie over until the next issue. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for the formula of an unusual, patented, or proprietary compound, always accompany the query with any information you may already possess regarding the locality in which it is used, its use and reputed effects, in order to enable us to make inquiry without waste of time and labor. When it can conveniently be done, send also a specimen of the label used on packages of the compound.

No. 954.—**Estimation of Glucose in Cane Sugar** (B. E.).

This correspondent writes: "In the August number of NEW REMEDIES, Prof. H. W. Wiley, in an article on glucose and grape-sugar, gives some tests for detecting the presence of grape-sugar used in adulterating cane-sugar. These tests do not seem to be definite, and can hardly be considered practical. Is there any good reason why it may not be more readily and satisfactorily done by making a solution of a known quantity of the suspected sugar (or syrup), and applying Trommer's sulphate of copper test—or preferably Oppenheimer's modification of it—as in the examination of urine for sugar? The recognized power of grape-sugar in reducing the salts of copper would not be interfered with by the presence of the variable amount of cane-sugar, which need be considered only in estimating the percentage of grape-sugar."

The tests given in Prof. Wiley's paper are not intended to be chemical, but merely rough, practical tests, such as would perhaps be used by a purchaser when examining a sample. To accurately ascertain the relative amounts of cane and grape-sugar, several methods are available. One is to estimate the glucose (or dextrose) by Fehling's copper solution (an improvement on Trommer's). This may be done under certain precautions with accurate results. It will be remembered that Fehling's solution contains an excess of an alkali. Now, cane-sugar is gradually converted into invert-sugar (which behaves like glucose), not only by merely heating or boiling in water for a short time, but, even more readily, by the action of acids or alkalies. If the copper solution is properly prepared, with as small an excess of alkali as possible, and if the sugar solution be sufficiently dilute, so that for every 10 cc. of copper solution at least 25 to 50 cc. of the dilute sugar solution are required for complete decomposition, and further, if the copper solution is raised to boiling first, and the sugar solution be added as rapidly as possible to the end of the reaction, the result will be tolerably accurate; though, if absolute accuracy is required, the volume of liquid produced by mixing the sugar solution and reagent must be taken into consideration. Another method consists in *inverting* the cane-sugar. Cane-sugar has a specific rotation to the left, when examined by polarized light. On boiling it with an acid, it loses this property, and is converted into a mixture of equal parts of dextrose and levulose, which has the property of being optically inactive at 87.2° C. If a commercial sugar, therefore, which contains right-rotating impurities (glucose chiefly), is inverted, and the product examined by the polariscope at 87.2° C., the invert-sugar (both that formed from the cane-sugar and that which may have been originally present) is entirely without action on the rotation, and only the dextrogyre glucose influences the polarized light. This is Chandler and Rickett's method.*

Casamajor recommends the use of methylic alcohol marking 50° of Gay-Lussac's alcoholometer, saturated with starch-sugar or glucose, as a qualitative test for the latter when mixed with commercial cane-sugars. The suspected sugar, after drying, is thoroughly washed with the test solution, which dissolves the cane-sugar and impurities, leaving the glucose in grains and powder. (Compare *Tucker, J. H., A Manual of Sugar Analysis.* 8vo, New York [Van Nostrand], 1881, p. 284.)

No. 955.—**To Bleach Bones for Osteological Study** (B.).

Bones may be bleached in several ways, though, in the main, the methods do not differ very much from each other. In the first place, it is necessary to get rid of all extraneous matter, such as attachment of lig ments, muscles, etc. Next they may be laid for several months in cold water, after which they should be boiled with weak lye. Instead of macerating them in cold water, they may be treated with lye at once, but it is not so easy to get rid of the fatty matter in this manner. Some others do not use potash at all; but, after having boiled the bones in water, they dry them, and then place them in naphtha for several weeks. After the fat has been extracted, they are generally white enough for all ordinary purposes. Still, they may be rendered whiter by immersing them for about twelve hours in a moderately dilute solution of chloride of lime (1 part of chloride of lime mixed with 50 parts of water, and strained). Finally the bones must be washed with water until the latter has completely exhausted every trace of chemicals or solvents employed on them. All bones do not stand treatment with potash equally well; the more slender, frail, and flexible a bone, the less potash it will bear. In fact, tender bones should be bleached without this agent.

No. 956.—**Garlicky Odor after taking Bismuth** (S. L. T.).

This correspondent asks what the reason is that subnitrate of bismuth causes a garlicky odor in the breath of persons using it? Whether it is a necessary effect, and whether it can be overcome by buying the product of any special manufacturer?

There are two elements, accompanying bismuth in certain localities, which form offensive smelling compounds. These are tellurium and selenium. Particularly the bismuth obtained in the Banat (Hungary), in Brazil, and in Mexico, contain those two elements. Peruvian bismuth contains 0.38 per cent of tellurium, according to Forbes, but no selenium, and the Saxonian or the Swedish (from Dalekarlien) contain neither the one nor the other, as far as known. The process of manufacture adopted for subnitrate of bismuth is such that but minute traces of selenium can pass over into the product. But more or less tellurium may find its way thither, and it is this substance, which, when it has entered into circulation, imparts such an offensive odor to the breath and other excretions of the body. Tellurium may be detected in the subnitrate as follows: Boil 3 gm. of subnitrate of bismuth with 60 cubic centimeters of a solution of soda of spec. grav. 1.250 for about 15 minutes. Then allow the liquid to cool, filter, and add to the filtrate some sulphide of ammonium. After some time filter again, if necessary, supersaturate the filtrate with acetic acid, and afterwards with hydrosulphuric acid. If tellurium is present, brown tellurium disulphide is deposited. If arsenic is present, the precipitate would be yellow.

There is no absolute guaranty that the product of *any* manufacturer may not at one time or another contain tellurium. Bismuth is imported from Europe, where a syndicate controls the bismuth market of the world, and one and the same lot of metallic bismuth consigned to one manufacturer *may* contain bismuth derived from various localities, though this is not generally the case.

No. 957.—**Vacuum Apparatus** (C. J. L.).

For the purpose of producing a strong aspiration, up to about 29 inches of mercury at least, there are several good

* See *Journ. Amer. Chem. Soc.*, Vol. I., and *Journ. Amer. Chem. Soc.*, II., 428.

methods at your disposal. Either you may employ a good air-pump, such as is constructed specially for vacuum apparatus by various makers, for instance James Clayton, 14 Water street, Brooklyn. Or you may use one of Koerting's jets, which works on the principle of Bunsen's vacuum pump. Koerting's jets are worked either by steam o by water, and are used for the most varied purposes, as for instance, for pumping liquids to higher levels, for pressing liquids through filters, for keeping liquids in motion, etc., all of which you may learn by inquiring of the American agents, Messrs. Schutte & Goering, of Philadelphia (12th and Thompson streets), who have an exhibit in the machinery department of the American Institute Fair at present open.

No. 958.—**Coloring for Essence of Lemon** (L.).

Our correspondent is disatisfied with curcuma, as it precipitates and fades in some cases; and also with annatto as it does not give a good color, and lacks that slight tinge of green which is so desirable. We are aware that it is rather difficult to permanently color such essences as contain essential oils, particularly if the essence is exposed to light and air. At least we know no method by which the loss of color can be permanently prevented. Yet, by keeping the stock in the dark, and in well-closed vessels, it may be generally greatly retarded or altogether prevented. We regret that there is a necessity for coloring these liquids at all, but we recognize the fact that the public demand must be appeased, until such time as a better knowledge of sanitary laws shall have been spread among the masses.

Probably the best and most lasting yellowish (not yellow) color may be imparted with a small quantity of caramel, but, unfortunately, it will scarcely answer where a fine, light-green tint is afterwards to be produced; for caramel rather imparts a brown than a genuine yellow tint.

The only other yellow coloring matters which seem to us a priori suitable for this purpose—though we want to have it understood that, in this case, we do not speak from experience—are the so-called "woad," a yellow coloring matter prepared from *Reseda luteola*, and formerly much more used in dyeing than now. The French woad is the best. The other substance is quercitrin or flavin, or extract of quercitron bark, which is obtained from the dyer's oak (*Quercus tinctoria*). This is almost insoluble in water, but will dissolve more or less in liquids containing alcohol. A green tint is produced by adding a small quantity of an *innocuous* blue coloring matter. There is only *one* blue color which is suitable for such purposes, and admitted by all sanitary authorities to be harmless, at least in such quantities as are likely to be ever combined with articles of food or drink. This substance is *indigo-carmine*. We have once have before described how this is prepared, but will repeat it here:

Take of the finest Bengal or Guatemala indigo 80 grams. Reduce it to a very fine powder, and dry it thoroughly at the temperature of the water-bath until it ceases to lose weight. Then place it into a capacious beaker, cover it with 500 grams of Nordhausen (fuming) sulphuric acid, mix it thoroughly, and set it aside, well-covered, for 24 hours in a warm place. During this time the mixture will foam up considerably, and must be repeatedly stirred. After 24 hours, enough water (about 1 liter) is added to render the mixture thin-fluid, and then finely-powdered chalk, under a constant stirring, as long as effervescence is produced. This causes the mass to thicken again, sulphate of calcium being separated. Afterwards the liquid is diluted with 1 liter of alcohol and filtered through paper. It is necessary to be very sparing in the use of this coloring agent, as it is extremely persistent.

No. 959.—**Cream-Colored Milk of Magnesia** (S. L. T.).

Our correspondent has been trying to make some "milk of magnesia," and on experimenting with dilute solutions of magnesium suphate and sodium hydrate, he produced an article which is, when first precipitated, apparently the same as that usually sold under that name in trade, but, in washing the precipitate the color changes from a pearly white to a cream tint. He desires to know what may be the cause of this.

We can only surmise that it may be owing to the presence of iron. Commercial Epsom salt is much more likely to contain iron than either the hydrate or the carbonate of magnesium. The gradual alteration of tint from white to cream, as the precipitate is washed and thereby more and more exposed to the oxidizing action of the air, would seem to point to iron, which is probably present as ferrous sulphate, from which ferrous hydro-oxide is first precipitated, changing to ferric. If, on examination, you find iron, you will have to look for another source for your Epsom salt, for it would not pay you to free the latter from the iron. Or, you may choose a very pure carbonate or oxide, dissolve it in dilute sulphuric acid and so prepare your own sulphate.

No. 960.—**Monobromated Camphor** (J. W. & Co.).

Prof. Maisch's process you will find quoted in the National Dispensatory, under Camphora monobromata. This process has been somewhat modified by Gault, who gives the following directions: Upon the finely powdered camphor, contained in a capacious retort, pour as much bromine as is required to dissolve it. This produces dibromated camphor. The neck of the retort is connected with a long wide tube leading to a solution of soda. The retort is now heated in the water-bath, when hydrobromic acid is at once generated and the dark-brown liquid becomes amber-colored. The latter is then poured into boiling water and the whole boiled until all free bromine and hydrobromic acid are dissipated. The almost colorless mass is then completely decolorized by repeated crystallization from alcohol, and in this condition represents pure monobromated camphor. According to Gault, if the decomposition of dibromated camphor is effected in a higher temperature than that of the water-bath, an oily substance is generated which is a compound of monobromated camphor with hydrobromic acid. On heating this oily body to 200–220° C., hydrobromic acid is liberated, and the residuary, black, viscid mass contains monobromated camphor which may be extracted by alcohol.

No. 961.—**Reactions for Bile in the Urine** (Dr. H. S. S.).

The test which has been always considered the most accurate and delicate, is that of Pettenkofer. In order to remove sources of error, and even minute amounts of biliary acids, the following process is prescribed:*

About 300–500 cc. of the urine is evaporated on the water-bath almost to dryness, and the residue is extracted with ordinary alcohol; the alcoholic solution is evaporated again, and the residue extracted with absolute alcohol. The solution thus obtained, now poor in salts, is freed from alcohol, the residue is taken up with a little water, the solution treated with subacetate of lead, of which an excess is to be carefully avoided, and the precipitate, after standing about twelve hours, is collected, washed, and gently dried between blotting paper. In order to remove as much as possible of other substances mixed with the lead precipitate, the lead compound with the biliary acid is extracted with boiling alcohol, the solution is evaporated to dryness after the addition of carbonate of sodium, and the residue is treated with absolute alcohol in order to obtain the sodium compound with the biliary acid. The sodium salt thus obtained always contains, in addition to the biliary acids, small amounts of a resinous constituent of the urine, which is colored brownish-red by sulphuric acid, at times also pale blue or violet, and, on heating, after the addition of sugar, reddish or yellowish-brown. This color is seldom so deep as to conceal the biliary reaction; but if this is found to be the case after a preliminary trial, the biliary acid is once more precipitated from the aqueous solution by subacetate of lead, the precipitate is collected after standing awhile, and decom-

* Compare particularly: NEUBAUER and VOGEL, Analysis of the Urine. By Cutler and Wood (8vo, New York, Wm. Wood & Co.), p. 127.

posed, as above, with carbonate of sodium. Then two or three drops of a solution of sugar (one part of sugar to four parts of water) are added to the aqueous solution of the sodium compound made as concentrated as possible, and afterward pure concentrated sulphuric acid, free from nitric and sulphurous acids, is added. Care is to be taken here that the temperature does not rise much above 70° C. If biliary acids are present, the fluid first becomes cloudy, then clear, and at the same time yellow, but shortly afterwards it changes to a pale cherry-red, dark carmine red, and at last beautiful purple violet.

If the test is executed as stated above, one-four-hundredth of a milligram ($\frac{1}{25600}$ grain) of the sodium salt of the biliary acid can be detected with absolute certainty.

However, there is a more simple process, by which the biliary acids may frequently be detected. It is that proposed by G. Strassburg. A piece of filtering paper is dipped into the urine to be tested, after a little cane-sugar has previously been added, and the paper is then allowed to dry. If a drop of pure concentrated sulphuric acid is now placed on the paper by means of a glass-rod, there appears in about a quarter of a minute a beautiful violet color, which is quite distinct, especially with transmitted light. This method is quite delicate; so small a quantity as 0.00003 gm. ($\frac{1}{2560}$ grain) of biliary acid gives the reaction in a most beautiful manner. Normal urine does not give it. If a large amounts of cane-sugar is present, a reddish or brown color, which, however, cannot be confounded with Pettenkofer's reaction, appears.

No. 962.—**Freezing Mixtures** (Dr. H. M. B.).

One of the following mixtures may answer your purpose.

PARTS OF:	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.
Ammo. chloride..	5	5				4				
Ammo. nitrate....			1	1			5	6		
Potass. nitrate....	5	5				2				
Sodium carbonate				1						
Sodium phosphate								9		
Sodium sulphate..		8			3	6	6		8	1
Dil. sulph. acid...										1
Hydrochloric acid									5	
Dil. nitric acid....					2	4	4	4		
Water	16	16	1	1						
Number of degrees, temperature is depressed.	40° F	46° F	46° F	57° F	80° F	60° F	62° F	71° F	53° F	53° F

No. 963.—**To Prevent Pills from Absorbing Moisture** (Dr. B.).

Our correspondent says: I find great difficulty in keeping a certain class of pills—particularly cathartic pills—hard, in consequence of the large amount of moisture in the atmosphere of this land (West-coast of Africa), which they rapidly absorb. Can this be obviated?

We would not advise to alter the excipient or binding material of the pills, because this might injure their ready solubility in the stomach. But we think you may overcome the difficulty either by keeping your stock of pills in small vials, glass-stoppered and otherwise securely closed; or else, by giving them a coating with a water-tight material, which will still be soluble in the digestive organs. Such a coating may be prepared from balsam of Tolu in the following manner: digest 15 parts of the balsam with 50 parts of water at a boiling temperature for an hour, with frequent agitation, and throw away the liquid. To the residue add 1½ part of rosin and macerate them with a mixture of 15 parts of absolute alcohol (95% alcohol will also answer, provided the ether was absolute) and 100 p. of ether. (The parts are meant by weight.) When no more is dissolved filter through cotton. The pills must be rendered perfectly dry on the outside, which may be accomplished by the cautious application of a dry heat. A little of the tincture is then poured into a flat tin-box, or a plate, or other suitable receptacle with flat bottom, a number of the pills are rolled in it, and kept in a rotary motion, until the superfluous liquid, which should be very little, has evaporated and the coating is hard and dry. This process may repeated several times. The evaporation may be hastened by a gentle heat, only care must be taken that the vapors do not come near an open fire.

No. 964.—**Sweet Quinine** (B. J.).

Hager (*Pharm. Prax.*, Suppl. 273) distinguishes between crude and pure sweet quinine, and gives the following directions, in which it will be noticed that *quinidine* is the only cinchona alkaloid employed:

"*Crude Sweet Quinine*" is prepared by extracting the residue left after the preparation of purified extract of licorice, with very dilute water of ammonia, filtering, evaporating to dryness and reducing the residue to powder. To every 120 parts of this powder are then added 110 parts of water and 45 parts of 10-per-cent water of ammonia, and the liquid mixed with a hot solution of 40 parts of sulphate of quinidine in 300 parts of water and 17.5 parts of dilute sulphuric acid (sp. gr. 1.115). The whole is then evaporated to dryness and the residue powdered.

The product contains 25 per cent of sulphate of quinidine. It is a brown, sweet tasting powder.

"*Pure Sweet Quinine*" is prepared as follows: 100 parts of glycyrrhizin (the insoluble principle, extracted from licorice root by ammoniacal water, and precipitated by an excess of acid) are mixed with 300 p. of distilled water and 45 p. of 10% water of ammonia, and gently heated on a water-bath. To this solution is added, under stirring, a hot solution of 40 p. of neutral sulphate of quinidine in 500 p. of water and 17.5 p. dilute sulphuric acid (sp. gr. 1.115). The heating is continued for a short time, with continued stirring, then the mixture is allowed to cool, set aside for 48 hours, the precipitate collected, washed with a little cold water, and dried at a gentle heat.

The product contains 30 per cent of sulphate of quinidine.

No. 965.—**Deterioration of Solutions of Atropia, etc.** (J. A. S.).

The "deterioration" of solutions of atropia and many other organic substances is generally owing to the development of fungi, the spores of which are floating about in the air everywhere. According to the nature of the solid or liquid with which they come in contact, they develop more or less rapidly and they grow, of course, partly at the expense of the organic matter present, particularly if they are below the surface of the liquid. Atropia is one of the most easily decomposed alkaloids, and therefore is rapidly destroyed as soon as a fungus has commenced to develop in it. Anything which can prevent the access and the growth of fungi can preserve such solutions from spoiling, but it is not easy to do so. Among these means are: alcohol, chloral, carbolic acid, salicylic acid, absolute exclusion of air, etc. But, while it is *possible* to preserve such solutions, it is not easy or convenient for the pharmacist or physician. Besides, in certain cases it is not only the fungous growth which devours the organic matter, but the substance may absorb oxygen, or otherwise split up in presence of air, and thereby alter in character. It is, under all circumstances, best to prepare solution of atropia *only* when wanted for use; then the physician will have no cause to complain nor the pharmacist suffer loss.

No. 966.—**Indian Cholagogue** (C. S. S., M.D.).

The composition of Osgood's Indian cholagogue is not exactly known, so far as we are aware. But Dr. Mayes, of Mayesville, S. C., has given the following formula, which he declares to be very similar to, if not identically the same, in taste, smell and effects: Sulphate of quinine, 2 ʒ; Fl. ext. leptandra, 1 fl. ʒ; Fl. ext. stillingia, 4 fl. ʒ; Fl. ext. podophyllum, 3 fl. ʒ, Oil of sassafras, 10 gtt.; Oil of wintergreen, 10 gtt.; Molasses, q. s. ad 8 fl. ℥. The mixture must be well shaken up before measuring out a dose, as the quinine settles to the bottom. Dose for adults: about 1 to 3 teaspoonfuls three times a day; to be varied according to the circumstances of the day.

BIBLIOGRAPHY.

GENERAL MEDICAL CHEMISTRY. For the Use of Practitioners of Medicine. By R. A. WITTHAUS, A.M., M.D., Professor of Chemistry and Toxicology in the Medical Department of the University of Vermont; Prof. of Physiological Chemistry in the Medical Department of the University of the City of New York, etc. 8vo.; New York: 1881. (August volume of Wood's Library of Standard Medical Authors.)

THE above work fills a gap in medical literature which has been severely felt for a number of years. There are, indeed, text-books of chemistry ostensibly designed for practitioners and students of medicine; but they nearly all fail to give a reasonably complete survey of the present domain of chemistry—particularly organic—so far as this science directly concerns medicine—while others presuppose a certain amount of knowledge of pure chemistry and devote too much space to physiological chemistry. But the latter branch of science is too large to be treated as a small subdivision in a chemical text-book; it requires a treatise for itself. Prof. Witthaus has wisely refrained from touching upon this field any further than to describe the chemical properties of the proximate principles which physiological chemistry has so far discovered. The author departs from the usual custom of chemical writers, who place the Organic at the end of Inorganic Chemistry. Instead of this, he treats of organic compounds in connection with carbon, where they really belong. The elements are treated in groups, based on their chemical relationship; but, while the first three groups (comprising H, O, F, Cl, Br, I, S, Se, Te, N, P, As, Sb, B, C, Si, Mo, Au, Fe, Cr, Mn, Al, Pb, Bi, Sn, Pt and their important compounds) have been treated at considerable length, the author was compelled to condense the fourth group (comprising Li, Na, K, Ag, NH_4, Ca, Ba, Mg, Zn, Ni, Co, Cu, Hg) rather out of proportion to the rest of the work. Nevertheless, no important compound has been omitted, and great care has been taken throughout the book to point out those chemicals which are official both in the British and the United States Pharmacopœia. The toxicology of poisons—including their action, detection, and antidotes—has likewise been paid particular attention to. The text is very carefully edited, as we have noticed but few misprints, and those of no special importance. It is undoubtedly one of the most valuable volumes ever issued in Wood's Library of Standard Authors.

A NEW FORM OF NERVOUS DISEASE. Together with an Essay on ERYTHROXYLON COCA. By W. S. SEARLE, A.M., M.D. New York: Fords, Howard & Hulbert, 1881, pp. 138, 8vo.

THE author describes certain peculiar symptoms referable to the nervous system, the pathology of which he does not attempt to explain and to which he affixes no name. Coca is recommended as a remedy, and a synopsis, from various authorities, is given of the nature and properties of the drug.

J. M. NICKELL'S BOTANICAL READY REFERENCE, Especially Designed for Druggists and Physicians. Containing all of the Botanical Drugs known up to the Present Time; Giving their Medical Properties, and all of their Botanical, Common, Pharmacopœial and German Common (in German) names. Compiled by J. M. NICKELL, Chicago, Ill., U. S. A., 1881, pp. 268, 8vo.

THE list includes 2,465 titles and a very copious index and suggestions for gathering and preparing botanical drugs for market.

CYCLOPÆDIA OF THE PRACTICE OF MEDICINE. Edited by DR. H. VON ZIEMSSEN, Vol. XX. General Index. New York: William Wood & Co., 1881, pp. 499, 8vo.

THIS concluding volume is practically one of the most valuable of the series; since without it the labor and time required for reference is so great that the comprehensive nature of the work usually fails to be appreciated.

FIRST BIENNIAL REPORT OF THE NORTH CAROLINA BOARD OF HEALTH, 1879-1880. Raleigh: 1881, pp. 201, 8vo.

THE PRESCRIBER'S MEMORANDA. New York: William Wood & Co., 1881, pp. 301, 12mo.

THIS is a new volume of the "Vest-Pocket Series" published by this house. Following the alphabetical enumeration of diseases from abortion to wounds, the anonymous editor has given résumés of the various modes of treatment recently advocated in the medical periodicals. He has not confined himself to mere formulas, but devotes a great amount of space to detailed directions respecting the general management of cases as given by modern and reliable authorities.

TRICHINÆ. How to Detect Them, and How to Avoid Them. Being a Popular Account of their Habits, Modes of Propagation and Means of Dissemination. Intended for the Use of Farmers, Butchers, Pork Dealers, and Consumers of Pork. By JOHN PHIN, Editor of the "*American Journal of Microscopy.*" Rochester: The Bausch & Lomb Optical Co., 1881, pp. 20, 8vo.

QUARTERLY SUPPLEMENT TO KILNER'S MODERN PHARMACY. Springfield, Ill., August, 1881, pp. 687 to 740.

Composition of Extract of Malt (Gehe & Co.'s).—DR. E. GEISSLER publishes the following list of constituents of Gehe & Co.'s Extract of Malt, which is a pale-yellow, light powder, of pure and mild malt-taste:

Moisture		2.02
Proteïn-bodies		7.02
Fatty substances		0.22
Carbohydrates:		
Soluble	sugar	88.50
	dextrin	32.02
Insoluble		0.42
Salts		1.64
Phosphoric acid		0.55

The proteïn substances were determined by multiplying the quantity of nitrogen found with 6.25. The soluble carbohydrates were determined, after Gerber, by boiling 1 part of substance for 5 minutes with 10 parts of water, adding to the liquid—which measured ab. 30 cc.—100 cc. of 50% alcohol, allowing to deposit during 12 hours, filtering off a sample, evaporating and drying. The determination of the sugar and dextrin was effected by two different methods, first by titrating the aqueous solution of the extract before and after "inverting," and the second time by separating the dextrin by means of strong alcohol, in such a manner that it separates in flakes, so as to prevent it from carrying down with it other substances.—*Repert. d. Anal. Chem.*, No. 10.

Hyoscine.—This new alkaloid of hyoscyamus, which was discovered by Prof. Ladenburg, of Kiel, and the therapeutic properties of which have been studied by Prof. Edlefsen, is now manufactured by E. Merck, of Darmstadt. The *hydriodate*, in small, thick, slightly yellow prisms, is not very soluble in water; but the *hydrobromate* is very easily soluble, and is in form of large, colorless, transparent crystals. [Compare, on hyoscine, our June number, p. 183.]—*Ber. d. Deutsch. Chem. Ges.*, 1881, 1870.

New Alkaloid of Cinchona.—Cinchamidine is the name given by O. Hesse to a new cinchona alkaloid, obtained by him from the mother-liquors left after the crystallization of homocinchonidine. The new alkaloid was accompanied by another still unstudied base. It crystallizes in colorless scales, or flat needles, or in short, thick prisms (from alcohol). It is very difficultly soluble in ether, rather easily in cold alcohol, easily in chloroform, insoluble in water. It melts at 230° C., and has the composition $C_{20}H_{22}N_2O$, the crystals being anhydrous.—*Ber. d. Deutsch. Chem. Ges.*, 1881, 1683.

PHARMACEUTICAL ASSOCIATIONS.

Fifth International Pharmaceutical Congress.

[Continued from page 314.]

PHARMACOPŒIA REVISION.

By M. CARTEIGHE (London).—Pharmacopœia revision is a subject of general interest to the members of the Congress, and of special interest to the pharmacists of Great Britain and Ireland. That pharmacists should be associated with the representatives of the medical profession in the compilation of a pharmacopœia is a proposition which will seem self-evidently reasonable to those members who have come to this meeting from abroad. It would seem a natural arrangement that while the representatives of medicine decide what drugs and remedies are to be inserted in such a volume, the formulæ of the preparations best adapted for their administration would be most conveniently determined by practical pharmacists. This view is accepted in the compilation of the various European pharmacopœias, the United States Pharmacopœia, and that of the Pharmacopœia of India.

If it be necessary to point out specially the practical advantages of the presence of the pharmacist on the executive body charged with the revision of a pharmacopœia, I would refer to the various processes and preparations of the United States Pharmacopœia. No other nation, so far as I know, possesses a pharmacopœia showing in each successive edition more marked improvement in the character, stability, and elegance of the various pharmaceutical preparations. The presence of the pharmacist on the Committee of Revision, and the representation of the leading colleges of pharmacy conjointly with those of medicine on the National Convention which appoints this Committee, have stimulated the progress of pharmacy in the United States to a marvellous extent. Its pharmacy is more advanced, and it possesses more workers in the purely pharmaceutical line of research than most other countries. This result is mainly due to the cordial recognition by the colleges of medicine of the value of public pharmaceutical institutions, and the services of their individual members in framing their national pharmacopœia.

The conditions under which pharmacy was conducted in Great Britain, before the foundation of Pharmaceutical Society in 1842, were not such as to inspire the medical profession or the public with much confidence in the ability or intelligence of those who practised it. The apothecary of those days had given up what little pharmacy he practised, and his successor had not acquired either by education or experience the necessary skill for advancing his art. The Pharmaceutical Society immediately after its incorporation set to work to educate and promote education in the general body. After nearly forty years of active exertion, it has succeeded in rearing a class of men who compare favorably with their Continental and American brethren in their knowledge of the science and art of pharmacy. The more active and experienced of the founders, not content with fostering education alone, occupied themselves in improving existing processes, and devising new and improved formulæ for pharmaceutical preparations. One of the most active in this respect was Mr. Peter Squire, who, by the publication of his comparison of the three Pharmacopœias of London, Edinburgh and Dublin, and his practical work in pharmaceutical research, contributed more than any other man to pave the way for the fusion of those pharmacopœias into one national volume. Other pharmacists also assisted, but it should not be forgotten that Mr. Squire and his fellow-workers in pharmacy prepared the materials for the first British Pharmacopœia.

The first British Pharmacopœia appeared in 1864, and was issued under the authority of the Medical Council, a body created by the Medical Act of 1858. Owing to the difficulties of reducing to one standard the processes and descriptions of three different pharmacopœias, and of recognizing the varying usages in pharmacy, and prescriptions of the people of three countries hitherto in these respects separate and independent, it was not a satisfactory work. In 1867 appeared a new edition, which, with the "Additions" published in 1874, forms the existing British Pharmacopœia. Modelled on the plan of the United States Pharmacopœia, this is a decided advance on all previous works of the kind published in this country, and the improvement is to be attributed to the large pharmaceutical experience and knowledge of the editor.

The question as to how often a new edition is called for must necessarily be viewed differently by the medical man and pharmacist. The public officials connected with the administration of the "*Sale of Food and Drugs Act*" in this country regard the pharmacopœia as the standard, in respect of purity and strength, for many preparations used in medicine. It is, therefore, very important to the pharmacist that the information contained in each edition should be of comparatively recent date. Ten years is a sufficiently long interval, and if the chemical nomenclature is not altered each time (and it need not be), I do not see that decennial issues would entail any inconvenience on the medical profession.

In conclusion, I hope the time is not far distant when the usefulness of pharmacists, in the construction of a British Pharmacopœia, will be recognized and appreciated to the same extent as in other countries. The medical profession and the public will both gain by the result.

PHARMACOPŒIA REVISION.

By CHR. BRUNNENGRAEBER (Rostock), *as representing the German Pharmaceutical Association*.—For the revision of a national pharmacopœia it is necessary that there should be a permanent commission, comprising among its members the largest possible number of pharmacists. It should be the duty of this Commission, during the periods between the publication of the successive editions, to investigate such new drugs as make their appearance in the drug market, in order to determine the characteristics of their genuineness, and at the same time to submit the formulæ given in the pharmacopœia to a continuous examination.

The results of this work should be brought to the knowledge of those interested in an appropriate manner, by official publication.

PHARMACOPŒIA REVISION.

By J. M. MAISCH (Philadelphia).—I shall be very much mistaken if the Congress do not demand, as a right, a larger representation of pharmacists in the periodical revisions of the pharmacopœias; in this respect, it seems to me that there can be but unanimity of views. In this connection, however, I think it would be well to agree also upon the periodicity of revision. While this in Europe is usually left to various circumstances, we have in the United States, since 1820, a decennial revision. As weighty an authority as Dr. Squibb has advocated a new revision every five years, a period which—urgent cases excepted—seems: o me to be entirely too short; while I approve of official modifications and additions, like the Addenda to the British Pharmacopœia, at any and all times.

MR. CARL SCHACHT (Berlin) explained the mode in which the pharmacopœia was prepared in Germany. The Committee was not a permanent one, but was called together when necessary. There was a desire now, however, to have a permanent committee, in which chemists and pharmacists should be equally represented with medical men; not, as appeared to be the case in some countries, where pharmacists had no voice at all in the matter.

MR. HAMPSON (London) said he felt extremely obliged to the authors of these papers, especially to Mr. Carteighe, for the way in which they had taken up this subject. This paper was a very clear and fair *résumé* of the subject, and was well worthy attention, especially by English pharmacists. All Continental countries where pharmacy existed were far ahead of England in this matter, and though

there might be reasons for this state of things, the time was now come when Englishmen should exert themselves in such a manner that the Pharmaceutical Society and chemists generally should be recognized as an instrument in the matter. At present the preparation of the pharmacopœia was entirely in the hands of medical men, no doubt aided by intelligent pharmacists, but the latter only acted as servants, having no power to vote on any question of pharmacopœial revision. An organic change was required to place English pharmacists on an equality with those of all civilized countries. The proposition of Mr. Brunnengräber appeared to him most important, that there should be a standing committee, and Mr. Carl Schacht, representing the views held in Germany, shared the same views. He believed that a standing Pharmacopœia Committee was the key to the whole subject. It was essential to the progress of pharmacy that in every country there should be an intelligent body of pharmacists always at work, taking into consideration new remedies and new processes. It seemed to him that this same committee might also undertake something in the nature of an international pharmaceutical inquiry, or at any rate do something in that direction. It would be a pity to have one committee sitting on an International Pharmacopœia and another on a National Pharmacopœia, when the same committee might usefully attend to both. If such committees were formed in all civilized countries, the most important step would have been taken towards the formation of an International Pharmacopœia.

MR. J. WILLIAMS (London) hoped the foreign friends would not go away with the idea that pharmacists in England considered their pharmaceutical processes to be very much behind the rest of the world. The truth was, that although not arrived at in the way they considered most satisfactory from a pharmaceutical point of view, the result obtained was, as he contended, fairly comparable with the pharmacopœias of other countries. He was, therefore, not prepared to accept Mr. Hampson's somewhat gloomy view of the state of pharmacy in England; and his opinion was that the pharmacopœia, if not scientifically prepared in every way, was still one of which Englishmen need not be ashamed.

MR. HAMPSON wished to say, in explanation, that his friend seemed to have misunderstood him. He had not reflected on the character of the work, or even alluded to it; still he maintained that the work might be better done, and probably would be better done if there were a better representation of pharmacists on the Committee.

MR. PETIT (Paris) said the French Committee was composed officially of Professors of the School of Medicine and the School of Pharmacy, and last time there were added the members of the Society of Pharmacy. In fact the whole of the work was done by the French pharmacists, by the Society of Pharmacy, and generally speaking, when the Committee met, none but the pharmacists were present. The medical men only came when they knew there was something to be got over. If, for instance, there was anything which could make against pharmacy, they would come, but, usually speaking, they did not come at all. Pharmaceutical members had only a consultative voice; and no power of voting, but the Committee never forbade the pharmacists to vote or to bring forward motions. The Committee was constituted under a very ancient law, and he believed that when a new law was framed, the position of the pharmacists would be put on a more satisfactory basis.

MR. OLDBERG (New York) said, as an American and as a citizen of perhaps the most cosmopolitan nation of the world, he felt obliged to thank the gentlemen who had expressed themselves in such complimentary terms as to the United States Pharmacopœia. Perhaps they had made recently even more progress than in the past in the direction of international pharmacy. They had made very great sacrifices in one respect to attain that end. For instance, they abolished fluid measures, and in the new edition all formulæ would be expressed in parts by weight; they had practically adopted the metric system; in the next pharmacopœia, the centigrade thermometer would be introduced. They had also resolved to make the proportions in pharmaceutical preparations decimal as far as possible. They had furthermore a practical, permanent pharmacopœial commission. It was only appointed once in ten years, and the members held office for ten years. The last Pharmaceutical Convention which appointed the present Revision Committee, moreover instructed that Committee to issue a supplement to the Pharmacopœia in five years.

MR. HAMPSON asked what was the exact position of pharmacists in the American commission with regard to medical men.

MR. OLDBERG (New York) said the pharmacists in that Revision Committee were largely in the majority. He was also happy to say that the medical men on the Committee were always ready and willing to accord to the pharmacists the right to decide all questions of a purely pharmaceutical character.

MR. GILLE (Brussels) then stated the composition of the commission in Belgium with regard to the preparation of the pharmacopœia. On that there were three pharmacists and two medical men. He, and the Government from which he was accredited, had become so satisfied of the importance of a special commission, that he was delighted to find that every one in the room was in accord with him. He thought a commission in which both medical men and pharmacists met from time to time, as a permanent commission in which the two branches of medicine were always sitting, would be a great gain. He further suggested that inasmuch as the Congress was completely in accord on this proposal it would be a pity to let the discussion become futile, and therefore he thought a resolution should be placed on the records of the Congress as a recommendation to future Governments, that it was desirable, in regard to an international pharmacopœia, a permanent commission should be appointed to keep note of the progress of medicine and pharmacy.

MR. PAYNE (Belfast) said the Irish pharmacists, like their English brethren, had no official recognition. It happened that the Vice-President of the Pharmaceutical Society of Ireland, Dr. Aquila Smith, was a member of the Medical Council, but he was not officially recognized as a member of the Pharmaceutical Society of Ireland. It appeared to him that pharmacists ought to have more voice in the formation of the Pharmacopœia and the Council of the Irish Society would be prepared to support any measure having that object in view. There was no doubt in his opinion that the pharmacists of Great Britain and Ireland ought to be officially represented on the next Pharmacopœia Revision Committee. The difficulty might occur that they were not medical men, which he admitted, but they were not desirous of interfering in any way with medical questions. There might be a special Pharmacopœia Committee, and those constituting it would take no part on the General Medical Council with regard to matters which affected only medical men.

MR. POEHL (St. Petersburg) said in Russia there was a Council composed of sixteen medical men and two pharmacists, and to the latter was delegated the whole preparation of the pharmacopœia. They submitted it to the Medical Council, but their approval was only a formality. They were authorized to consult various pharmaceutical authorities and do their best to produce the work in the best possible shape, and it was then presented to the Council and approved.

DR. F. J. B. QUINLAN said he should be glad, as an Irish physician, to say a few words on this subject, which appeared to him to belong both to the medical profession and also to the pure art of pharmacy. He was old enough to recollect when there were three pharmacopœias, one for England, one for Ireland and one for Scotland, and he also recollected the serious embarrassment which this state of things occasioned both to teachers of materia medica and to their students. That had been swept away. For a long time the compilation of the pharmacopœia belonged altogether to the College of Physicians, no one

else having a voice in the matter. That, as a fellow of the College itself, he said was unreasonable, for, without any offence to the medical profession, pharmacists as specialists were strictly co-ordinate with them and equally important. As a physician and teacher of materia medica he would express his entire accord with the recommendation just made, that there should be a standing committee, composed in equal numbers of medical men who were experts in pharmacy—because there were some medical men who possessed this qualification—and also the delegates from the English and Irish Pharmaceutical Societies. If there were a standing committee composed on that principle the pharmacopœia would become what it ought to be. It was not a bad pharmacopœia considering the circumstance, but it might be made a great deal better. Medical men might as well try to make their own surgical instruments as to make their own preparations. He remembered the time when there were stringent instructions given in the pharmacopœia in Latin how to make the various saline preparations and all other things, and he remembered also, for he used occasionally to visit manufactories, that practical men never attended to those directions; epsom salt was epsom salt and they made it in the cheapest way. The same with other preparations. He would strongly advise the Congress to pass a resolution in favor of such a standing committee as had been referred to, for by thus working in harmony great results would be obtained.

MR. SINIMBERGHI (Rome) said he hoped the desire of the British pharmacists to be represented on the Committee for the revision of the British Pharmacopœia would be accomplished, especially as the Italians had already attained this. Hitherto, Italy had not possessed a national pharmacopœia, having been divided into separate states and being held by foreign masters, but when Italy became a united nation, it was determined to have a pharmacopœia, and in the first place a commission was appointed consisting of doctors. He would not say the doctors were not able to compile a pharmacopœia, but they had not the practical knowledge which pharmacists had, and which was so necessary for such a work. Therefore, the Italian pharmacists addressed representations to the Government upon the subject, pointing out that although medical men were very scientific and able, yet there were many practical points which they could not be expected to understand. He was glad to say that their request was acceded to, and an equal number of pharmacists were appointed on the commission. The doctors really took their advice on every practical point, and the pharmacopœia was now progressing with the help of both classes. He hoped the wishes of the British pharmacists would be carried out with equal success.

MR. G. F. SCHACHT (Clifton) was very pleased with one feature of the discussion, which seemed to him to carry with it a large amount of encouragement. It was, perhaps, only natural to expect when the expression of opinion came from pharmacists only, that there should be a general consensus of opinion in the direction of showing how important it was for the general interests of pharmacy and the public that pharmacists should hold a recognized place in the profession with regard to matters regulating state pharmacy; but he was especially pleased to find similar views expressed by a member of the medical profession. It seemed singularly fortunate that he should have followed and echoed, as it were, the practical illustrations of the possibility of the alliance they had heard from Mr. Poehl, who informed them that in Russia there was an absolutely legal recognition of the rights of pharmacy to be credited with an equal position side by side with medicine, proving, to a large extent, the practicability of the idea that pharmacy should be declared everywhere and at all times to constitute an integral portion of the medical art.

MR. SYMES (Liverpool) indorsed the views which had been expressed, and hoped the discussion would not close without some practical vote being taken. Those present were aware the subject was to be discussed by the Medical Congress, and he thought a resolution passed at that meeting, where there were so many eminent representatives of pharmacy from other countries, would be of considerable value to English pharmacists in supporting their cause in future.

MR. ATKINS (Salisbury) said it had been suggested that pharmacists should ask to be equally represented on the commission with medical men. It would be well to ask for a position, but he thought it would be better not to indicate the numbers in which they should present themselves. It appeared from the discussion that the condition of pharmacy on the Continent was higher at present than it was in Great Britain, and that might help to explain to a large extent the different position of pharmacy with regard to medicine there. He should like to know the exact position of medical men on the Continent with regard to dispensing. He presumed that there the state of things actually existed which in this country they were aiming at, the separation of pharmacy from medicine, and the drawing of an honorably understood line between prescribing and dispensing. When they had that position more clearly defined, and had a higher status, which was being gradually acquired, they would have gone a long way towards acquiring that position on the revision of the pharmacopœia which they were aiming at. If this separation took place, it would be clearly more important than ever that those who were practically engaged in the preparation of medicine should have a distinct position with regard to the framing of the pharmacopœia.

MR. DE VRIJ (The Hague) said it would perhaps be interesting to the Congress to know how these matters were arranged in Holland, although it was only a small country. In 1864, the king had appointed a Commission, which consisted of three professors, two of botany and pharmacology, and one of chemistry, and four pharmacists, so that the pharmacists were in the majority. When they met for the first time to discuss the thing they thought it was necessary to have at least one or two physicians. The position, therefore, was just the reverse to what it was in England; there were four pharmacists, three professors, and no medical man at all. But the pharmacists thought it necessary to have at least one medical man to advise them what remedies they ought to introduce into the pharmacopœia, and one was therefore appointed.

MR. V. WALDHEIM said in Vienna the Commission was not a permanent one, but when they wanted something added to the pharmacopœia they went to the Minister of State about it. The Commission consisted of six chemists, the other members of the Council were professors of botany and chemistry, but they all worked together, and the results were voted upon by the whole body.

MR. OLDBERG said he had omitted to state one important fact which occurred in America. One of their prominent medical men, who was also one of the most prominent pharmacists, Dr. Squibb, proposed to the American Medical Association that it should take charge of and control the United States Pharmacopœia. That Association, however, formally decided not to accept the proposition, but preferred to leave the matter just as it was now, where the pharmacists had the control.

MR. PETER SQUIRE (London) said all the pharmacopœias made in this country, from first to last, under the College of Physicians, had been made by physicians alone, and that made the great difference between this and other countries, the usage on the Continent being very different. There were also separate pharmacopœias for England, Ireland and Scotland, but that was reformed when the Medical Council was established, and they were indebted to Sir James Clark for requesting that Society to send a delegate to sit on the Pharmacopœia Committee. That was the first step, which no doubt would be improved as they went on. He believed in the motto "*poco a poco*," and if they followed it he thought they would get on better than by attempting too much at once. While he was upon the Committee sent by that Society, he was very much pleased to find there were some very able men there, for instance, Dr. Apjohn, of Dublin, Dr. Aquila Smith

and Dr. Neligan, the editor of the book which was used by all pharmacists in Ireland, all very able men, and in Scotland they had Sir Robert Christison and Dr. MacDougall. Chemistry was very well represented on the first Committee, and pharmacy was not shut out, for he was present himself. On the second Committee pharmacy was represented by Professor Redwood and Mr. Warington. Therefore, pharmacy had not been shut out since the Medical Council was established. He was inclined to think that if they had the *suaviter in modo* as well as the *fortiter in re* they would get on better.

MR. LOTZE (Odense) said in Denmark the present pharmacopœia was thirteen years old, and it must soon be replaced by a new one. It was prepared by a Commission consisting of ten members, eight of whom were physicians and two pharmacists. Steps would soon be taken for preparing a new one for Denmark and the Scandinavian countries, and he was sure the pharmaceutical societies in those countries would do all they could to get the fullest representation of pharmacists on the Commission appointed.

The PRESIDENT said he should like to say a word or two on the resolution now before the Congress, especially for the purpose of guarding against any erroneous impression being formed by their Continental friends as to the course which had been adopted in this country by the medical profession. It was not to be supposed that members of the medical profession in this country had at any time set themselves against, or had offered any obstruction in the way of pharmacists contributing to the fullest extent of their ability towards the improvement of the pharmacopœia. The position, however, which pharmacists had occupied in this country had been such that it had not been until recently that the medical profession could call on pharmacists as a body to take a prominent part in the revision of the pharmacopœia. It must be borne in mind that forty years ago there was no such thing as a recognized pharmaceutical body in this country; that there was no such thing as pharmaceutical education, or examinations; and that it had been entirely within the last forty years that a body of qualified pharmacists had sprung up. Now there could be no question, when two bodies had to be associated together, such as the medical men on the one side and the pharmacists on the other, in carrying out some common object, that the position which they would respectively occupy must depend on the status and influence which they had each acquired amongst educated men. Pharmacists had been gradually becoming a scientifically educated body, but that had required years to attain, and they could not pretend, even at the present time, that they had attained to a position which was at all comparable to that of the medical profession. Consequently they must be satisfied with being gradually admitted to the participation in the performance of important duties, such as the revision of the pharmacopœia. But he thought medical men during the last forty years, he might even say during the last fifty or sixty years, had been seeking about for pharmacists capable of assisting them in the construction of the pharmacopœia. The first pharmacist of whose services they were able to avail themselves in this country was Mr. Richard Phillips, whose name would be well known in connection with the editions of the London Pharmacopœia up to that of 1852. He was a pattern pharmacist. He had been educated in the establishment of Allen & Co., of Plough Court, known all over the civilized world, and he afterwards established himself as a chemist and druggist in the Poultry. He cultivated a knowledge of pharmaceutical chemistry, and his services were taken advantage of by the College of Physicians, who engaged him to revise their pharmacopœia for several years. After the death of Mr. Phillips, the next step which was taken by the College of Physicians, who were alone legally authorized to revise the pharmacopœia of this country, was to apply to the Council of the Pharmaceutical Society requesting the Council to appoint a committee, which he might designate truly a permanent committee. His friend Mr. Squire was on that committee, and he was himself the Secretary. They were actively and continually engaged in the revision of the pharmacopœia for seven or eight years, until the duties, in that respect, of the College of Physicians were transferred to the Medical Council. Then the committee's functions ceased; but, nevertheless, the Council of that Society was requested by the Medical Council to transfer the duties of that committee to the Council itself. The committee continued to sit afterwards for several years, until at last Mr. Squire and one or two pharmacists in North Britain took the place of the committee in the revision of the first British Pharmacopœia. What he wished more particularly to say was that medical men had shown no indisposition to take cognizance of the existence of a recognized and qualified pharmaceutical body, and to avail themselves of the benefit of the skill and experience of the members of that Society. It appeared to him that this was obviously a subject especially interesting to the pharmacists of this country, rather than to those on the Continent, inasmuch as English pharmacists were seeking to obtain what their Continental brethren were already in possession of. The question was how they were most likely to obtain it, and it appeared to him to be a question, the settlement of which, to their satisfaction, was most likely to be effected—not by reference to any simple or abstract principle of right or wrong, not by the claiming of an assumed right, advocating in strong terms their claims to that right—but rather by the judicious exercise of a wise diplomacy. That really was their strong ground. The most likely way to obtain what they desired would be placing themselves first in a secure position by raising their scientific studies and improving their influence amongst educated men; and secondly, through the intervention of the influence which might be exercised by disinterested persons, not the opinions they might express themselves, but by getting influence brought to bear upon those in authority by persons who were in a more disinterested position. In that sense he did consider they were greatly indebted to that Congress, and especially to the foreign members, who had spoken so handsomely and temperately on this subject.

MR. CARTEIGHE read a letter which had been received from the Secretary of Section 15 of the International Medical Congress, stating that the section, dealing with materia medica and pharmacology, would hold its first meeting on Wednesday at 3 o'clock, and that the President, Vice-President, and Secretaries of the International Pharmaceutical Congress were invited to attend. He also stated that a letter had been sent requesting that the subject of an International Pharmacopœia, which was to be discussed in Section 15 of the Medical Congress, might be fixed for Friday, when the members of the Pharmaceutical Congress would be able to attend.

MR. CARTEIGHE, on behalf of the officers of the Congress, said he must ask permission to postpone the resolutions with regard to the universal pharmacopœia until the next day. There were so many resolutions to be translated, and it was so difficult to put them into precise language without any danger of misconstruction, that it was thought better to go on slowly and steadily. It was therefore intended that the present Vice-Presidents and Secretaries should meet again at the conclusion of the Congress with the view of preparing them and having them printed by the morning. They had agreed on a resolution with regard to the revision of the pharmacopœia, which practically consisted of Dr. Brunnengräber's paper. It would read thus:—

"That in the opinion of the Fifth International Congress, meeting in London, it is the duty of all pharmacists to urge that in the future revision of the national pharmacopœia it is necessary that there should be a permanent committee or commission, comprising among its members the largest possible number of pharmacists. It should be the duty of this commission, during the periods between the publications of the successive editions, to investigate such new drugs as make their appearance in the drug market, in order to determine the characteristics of their genuine-

ness, and at the same time to submit the formulæ given in the pharmacopœia to a continuous examination. The results of this work should be brought to the knowledge of those interested, in an appropriate manner, by publication before the final promulgation of that work."

PHARMACOPŒIAL NOMENCLATURE.

By OSCAR OLDBERG (New York).—International uniformity in pharmacopœial nomenclature being attainable only by conformity as far as practicable to recognized requirements of science, and by mutual concessions and agreement, the writer would respectfully offer for the consideration of this Congress a few propositions, which, if settled, might in his opinion bring about substantial results in the direction of progress, and possibly enable the several countries to meet each other. These propositions, it will be seen, are not new. They are submitted, however, in the earnest hope that they may be discussed, and, if possible, acted upon. The deliberate opinions expressed by this Congress will undoubtedly not only tend to prevent greater divergence between the pharmacopœias which are now undergoing revision, but will have their influence in bringing them closer together.

The propositions are as follows :—

That it is desirable, in order to bring about uniformity in pharmacopœial nomenclature—

(1). That the Berzelian system of chemical nomenclature, as illustrated in a general way by the pharmacopœias of the Scandinavian countries, France and Spain, etc., be adopted.

(2). That in naming each chemical respectively, that part of the name which refers to the base shall be in the adjective form and placed before the other, so as to combine alphabetical order with systematic classification.

(3). That the Latin names of alkaloids shall have the termination "-ina."

(4). That the Latin names of glucosides and other neutral principles shall have the termination "-inum."

(5). That the term . . . be adopted to designate volatile oil.

(6). That in naming solutions, tinctures, extracts, and other pharmaceutical preparations, the most important constituent be named in each case, respectively, as far as practicable, and that that part of a name of each preparation shall be placed first which refers to such constituent.

The object of the adoption of the first proposition is self-evident, and has already been discussed by a previous International Congress, though I believe no decision was reached. The Berzelian nomenclature brings the different pharmaco-chemical nomenclatures in use in the several countries together; it is not in conflict with the new chemistry; and it is readily understood by all nations.

The second proposition explains itself.

The third and fourth propositions represent the conclusions arrived at by the Committee of Revision and Publication of the Pharmacopœia of the United States of America, and I may say that the Committee named adopted these terminations for the names of alkaloids and neutral principles respectively in the belief that other countries would adopt no other.

The fifth proposition is a difficult one to settle. Volatile oils, so called, are not only not oils or fatty substances, but their properties are so different that no chemical name can be found which will apply to all. The term "ætheroleum" is used in the Scandinavian Pharmacopœias, and although it contains the word "oleum," it is the only term the writer is prepared to suggest.

The object of the sixth and last proposition is to bring the several forms in which the same remedy is used together in one group when alphabetically arranged.

THE DISADVANTAGES OF THERAPEUTICAL CONSERVATISM IN REFERENCE TO THE PHARMACOPŒIAL MATERIA MEDICA.

By OSCAR OLDBERG (New York).—It has been urged in opposition to the adoption of an International or Universal Pharmacopœia that such a work must either be insufficient and unsatisfactory to some part of the world, or so extensive as to be unwieldy. The size of the work will, however, in the writer's opinion probably be received with favor rather than otherwise if it is simply the necessary result of completeness. Such a work in order to be useful must include all substances used in the materia medica to any considerable extent, and all new remedies which seem to possess therapeutic value. For one, I I believe that no pharmacopœia should be prepared with a view to sanction the use of certain drugs or chemicals, while it condemns others by ignoring them. Any attempt to decide through the medium of a pharmacopœia what remedies shall be used and what remedies shall not be used would, we all know, be futile.

If it were possible for any body of men to pass judgment upon each and every article which is claimed to possess medicinal value, and to decide correctly on the one hand which substances are certainly entitled to a place in the pharmacopœia because of their therapeutic properties, and on the other hand which substances are in fact worthless or unimportant, then a pharmacopœia might be made a weighty authority in therapeutics; but when we know how widely the most generally recognized writers differ on these points, there seems to be room for no other conclusion than this—that *a pharmacopœia should have no weight as a purely therapeutic guide.*

It is true there is nothing in any of our pharmacopœias which justifies the supposition that it teaches therapeutics, for the therapeutic properties of the several remedies are not mentioned; but we find that the materia medica list in each is comparatively limited, and we frequently hear the most able and respected authorities condemn the introduction into a pharmacopœia of this or that remedy, on the groud that although its chemical constituents indicate that it probably possesses great medicinal activity, yet because its actual physiological and therapeutic effects have not been fully studied, or the conclusions of the investigators not g nerally accepted, it ought not to be admitted into the pharmacopœia. The pharmacopœia, it is held, must be so conservative as not to *sanction* or *recognize* insufficiently tried remedies. But why should the insertion into the pharmacopœia of an authoritative description of a new drug be construed as a certificate of the therapeutic value of that drug? Ought it not instead to be a universally recognized rule in the preparation or revision of pharmacopœias that the mere fact that a certain substance has been accorded a place in the pharmacopœia shall not be looked upon as evidence of positive value? Does not a conservative tendency of a pharmacopœia in this direction materially obstruct the discovery of new additions to the materia medica list, if, indeed, a remedy not mentioned in the pharmacopœia may be inferentially considered as having been already rejected? Should not the pharmacopœia on the contrary furnish descriptions of all new remedies which in the opinion of the revisers are probably useful, in order that physicians who desire to investigate further the properties of these remedies may be able to identify the particular substances used, and know that they are not only of good quality, but genuine. Instances have not been infrequent of the separate use of more than one substance under the same name, though essentially different in properties, and in the case of *new* drugs the origin and characteristics of which are not generally known, or are not published in a recognized common standard guide, such as a pharmacopœia, the contradictory conclusions thus arrived at by different investigaters may result in the condemnation of a really valuable remedy, whereas, if the pharmacopœia, or an authoritative supplement to it, published between the regular periodical revisions, contain a description of each new drug, such as would enable any intelligent pharmacist, and any physician versed in pharmacognosy, to identify it beyond doubt, and to exclude any other drug which may ignorantly or designedly be offered under the same name, then the

chemical, physiological, and therapeutical trials made would sooner determine the value or want of value of the drug, and valuable remedies would not be liable to a too hasty condemnation.

Both of the foregoing papers were referred without discussion to the Pharmaceutical Commission.

PHARMACEUTICAL EDUCATION.

By CHR. BRUNNENGRAEBER (Rostock), *as Representing the German Pharmaceutical Association.*—Pharmaceutical instruction in the German Empire is regulated by two edicts of the Imperial Chancellor, Prince Bismarck: of March 5th, 1875, "Concerning the Examination of Pharmacists," and of November 13th, 1875, "Concerning the Examination of Pharmacists' Assistants."

The course of instruction comprises.—

(1). *The School Training.* There is required either—
  (*a*). The qualification certificate, requisite for the one year's voluntary army service, from a recognized school in which Latin is a compulsory subject; or,
  (*b*). The certificate of fitness for entry at a university.

(2). *The Apprenticeship.* This, in the case of pupils falling under (*a*) lasts for three years, and of those under (*b*) two years.

(3). *The Assistant's Examination* takes place, upon the request of the master of the apprentice, before a Government board of examiners, consisting of one of the higher medical officials and two pharmacists.

(4). *The Period of Service as an Assistant* lasts three years, and at least one-half of that period must be spent in a German pharmacy.

(5). *The Study at a University* extends over at least three sessions (1½ year), and comprises general and pharmaceutical chemistry, general and pharmaceutical botany, pharmacognosy, qualitative and quantitative chemical analysis (including poison and food analysis), and physics.

(6). *The State Examination* is undergone before one of the twenty-three examination commissions, each consisting of a professor of chemistry, of physics, and of botany, and two pharmacists.

As in the course of time it had become manifest from the practical working of these examination regulations that many points in them required further reform, the German Pharmaceutical Association, in 1878, appointed a committee to confer upon the reform of pharmaceutical education. After this committee had continued its labors two years, as described in two reports, it last year submitted to the General Meeting in Breslau propositions for reform, and it was resolved at that meeting that these should be laid before the Imperial Chancellor and recommended to his consideration.

These suggestions are in reference to—

(1). *The School Training:* that the standard should be raised to the level of producing a certificate of fitness to attend a university by all intending to devote themselves to a pharmaceutical career; or, with that, if possible, the official declaration of the equal value of the certificate relating to the assistant's examination.

(2). *The Apprenticeship:* would then last only two years.

(3). *The Study at the University:* that it should be prolonged over at least four sessions (two years), and extended to microscopy, mineralogy, toxicology, and zoology; further that those pharmacists who wished to obtain the qualification to act as medical and sanitary officials, visitors of pharmacies, examiners and professors of pharmacy should, after a further stay of at least two sessions, have to undergo a corresponding second examination.

PHARMACEUTICAL EDUCATION.

By EDWARD SCHAER (Zürich).—It is thought necessary, or at least highly convenient (inasmuch as a certain degree of uniformity of pharmaceutical training in different countries seems desirable and obtainable) that—

(1). Owing to the great enlargement of medical and pharmaceutical education in the last twenty years the period of the academical studies of the pharmacist be not shorter than two years (or four semesters), and further, that education essentially pharmaceutical be in the hands of teachers belonging to the pharmaceutical profession.

(2). That besides the general knowledge of the use of the microscope and microscopical work in general botany, there be also special microscopical study in respect to pharmacology, hygiene, and toxicology and that pharmaceutical examinations be made to include this kind of knowledge, as is already the case in several states.

3). That the "*history of pharmacy and of drugs*" be introduced in a more or less official way into the studies of the pharmacist, either in form of lectures on the subject, or, as regards the history of drugs in connection with pharmacology, in the way followed in the Pharmacographia.

(4). That in order to facilitate contact between the medical and pharmaceutical professions, pharmaceutical studies should be supplemented by "*medical toxicology*" and "*physiological chemistry*" (including practical laboratory work), inasmuch as these two branches are deemed suitable to the pharmaceutical chemist, and also as they can be treated and taken up without previous exact anatomical and physiological training.

In case of introducing these subjects into the studies of the pharmacist, it would be desirable to give them a place in the examinations in connection with other allied sciences.

PHARMACEUTICAL EDUCATION.

By J. M. MAISCH (Philadelphia).—Concerning pharmaceutical education, I do not think that there will be any difference of opinion that it should make its aim as high as possible. While I feel satisfied that the existing conditions in Great Britain differ very materially from those of Continental Europe, and that ours assimilate most to those of Great Britain, still the conditions in the United States are so exceptional, that it will be difficult to reach in this matter a conclusion, which, while it may be entirely applicable to Great Britain, would also with equal force apply here. Of the high aim and good intentions existing on this side of the Atlantic, I am thoroughly convinced; of the means of reaching those aims, there may be honestly held different views. But while I doubt not that, in the main, we all agree about the educational standard to be reached by those to whom the practice of pharmacy is to be intrusted, I think that not only the facilities should be offered, but also a love should be awakened and cultivated for original research, commensurate to the large number of well-educated pharmacists, and to the importance of the material handled.

PHARMACEUTICAL EDUCATION.

By J. DITTRICH (Prague).—This question appears as a permanent feature in the programmes of all the International Pharmaceutical Congresses hitherto held. Individual states have since more or less carried into effect the desire entertained. The increased demands upon the pharmacist appear to make a wider general education desirable.

As to what relates to the department of autonomous pharmaceutical study, encouraging points of support are found in the Ecole Supérieure de Pharmacie de Paris and in the Pharmaceutical Institute added to the University of Dorpat.

If possible, only pharmacists should teach as professors in pharmaceutical schools, and this is especially of importance in relation to pharmaceutical chemistry.

SUGGESTIONS.

From EMLEN PAINTER (San Francisco), *President of the California College of Pharmacy.*—1. That all colleges of pharmacy require a preliminary examination.

2. That a uniform system of examinations be adopted so that diplomas may be recognized universally.

From C. R. BLACKETT (Melbourne), *President of the Melbourne Society of Victoria.*—That uniformity in pharmaceutical legislation and education in all parts of the empire is desirable, and that some systematic attempt should be made to attain that end as far as practicable, and as soon as possible.

MR. PETIT (Paris) thought it would perhaps be useful to put the meeting *au courant* with the state of things in France. There were now two classes of pharmaciens, and formerly there was a great difference between the two classes, because the second class needed only to spend one year at the school; but within a year a change had been made, and they were obliged to go through the same special curriculum as the first class. It was, therefore, the intention of French pharmacists to ask, and they believed it would be granted, that in future there should be but one class of pharmacists, viz., the first. As for the education required, before entering in pharmacy, the candidate must obtain the degree of bachelor of science, he must then spend three years in a pharmacy, and then three years in a school. The second class was intended only to practise in small towns and villages, but in fact the number of second-class pharmacists had been much increasing of late years, and if nothing were done, the whole of the business would fall into their hands. It was therefore desired that there should be but one class having a complete literary education, as a preliminary to their special studies.

MR. HAMPSON (London) asked if there were any regulation in France enforcing a pupilage or apprenticeship.

MR. PETIT replied in the affirmative. There was a three years' apprenticeship, after which the pupil had to pass an examination by a board consisting of a professor in the School of Pharmacy, assisted by two pharmaceutical chemists engaged in business.

MR. SINIMBERGHI (Rome) then described the state of affairs in Italy. He said in the time of the Pope, there was a pretty fair education in chemistry, because one was obliged to learn Latin and philosophy, and then to go to the university for two years. After that, a year's practice was required in a pharmacy of the first class. Since the establishment of the National Government, the conditions were much the same, but more rigorous, because formerly candidates were not obliged to study mineralogy, toxicology and zoology, which was now necessary, and instead of two years', they required three, and afterwards a four years' practice in pharmacy of the first class. The diploma of the second class was now abolished, but it existed under the Papal Government, and in some of the smaller Governments, because at that time Italy was a geographical expression, not a state. This second-class diploma was intended for people in small country places; those holding it could not establish themselves in towns. The present Government had abolished this, and whoever wanted to be a pharmacien must pass the major examination. Besides that they could not have an assistant to make up prescriptions unless he had passed an examination before the committee appointed by the Government. That was a very good regulation, because, otherwise, an educated young man might have to remain the slave of another without education whatever and who was not acquainted with the science of the profession. The present state of things put the Italian pharmacist to great inconvenience, because the Government prescribed that only those who passed the major examination could establish themselves, but in little country places with only one thousand inhabitants they could not suppose that a qualified chemist, who had passed the major examination and spent all his life until he was twenty-five in study, would go and settle in a poor village of that sort, which would not afford him a living. Therefore, to meet this difficulty it was proposed that there should be two diplomas, as in France at present, a first and a second class, and he would propose that the second class should only be allowed in small places where there was not a prefecture. He and his colleagues hoped that this system would be adopted, because they thought it was necessary and society could not get on without it. Any decision that was come to by the Congress he would communicate to his colleagues.

MR. SEBARDT (Stockholm) said the course in Sweden was about the same as had been described in the German Empire, with the exception that in the first class a student spent a period of two years instead of three as recommended by Dr. Brunnengräber for Germany. The whole system of pharmaceutical education and examination came entirely within the purview of the department of the public health, and the whole of the examinations were conducted by the pharmaceutical school at Stockholm, which was the only school of pharmacy in Sweden. That school was originally established by the Apothecaries' Society, and was maintained largely at its expense, but Government had this year assumed entire charge of the Institute, which was hereafter to be a public school, supported exclusively at the public expense. The immediate supervision of the school was intrusted to a board of six members, four of whom were the professors, and two practical pharmacists, the whole action being subject to the approval of the department. Two of the present teachers of the school were pharmacists. He did not think a more memorable moment than the present could be desired for attempting to attain a more uniform practice with regard to pharmacy throughout the civilized world, and he ventured to express a hope that by elevating the standard of professional training they might tend to uniformity amongst methods of work in the pharmacopœias, which naturally represented the sum of pharmaceutical knowledge and skill.

MR. G. F. SCHACHT asked if the foreign gentlemen who spoke on this subject would accompany their information with a statement as to what extent the pharmacist, in virtue of his education, received privileges from the State. This had a very important bearing on the English aspect of the matter. It would be well to know if they were privileged to be only one or two chemists in a certain locality or whether they might be one amongst forty.

MR. PETIT (Paris) said in France there were formerly two classes, the first and second; the first had the right to establish himself anywhere in France, but the second class could only do so in the department where he was admitted, so that if he wanted to go into another department he was obliged to pass a fresh examination. A great many of the second class passed in the departments of the Rhone and Seine and they remained in Lyons and in Paris. There were a great number of second class pharmacists in Paris of recent years, though formerly all the chemists in Paris were the first class. The rights of chemists in France were the following:—They only were allowed to sell medicaments, but some substances which were in general use were not looked upon as medicaments. On the other hand it was not lawful to sell any compound without the prescription of a medical man, but that was not practically carried out, so they were asking now that in the new law all prescriptions and medicaments might be sold on demand. Of course they understood that poisons must not be sold, but it should be provided by a general law, and not one directed against chemists. If any one wanted two pounds of cyanide of potassium he could get it as easily as possible, but if he wanted a grain he could not get it. There was no limitation on the number of pharmaciens.

MR. DE VRIJ (The Hague) agreed with the paper of Professor Maisch. He did not think there would be any difference of opinion on a matter of education; they should aim as high as possible, and it might be interesting to the Congress to know how this was managed in Holland. Since 1864, before entering pharmacy, a candidate must pass a literary examination, which included Dutch, French and German, the elements of Latin; he must also pass in arithmetic and mathematics to a certain point. Having passed that, the habit was to go to the university, of which there were four, at Leyden, Groningsberg, Utrecht, and Amsterdam. In order to be admitted to the univer-

sity they must first pass the literary examination, then they pursued the same course as other students and had to pass a scientific examination by a board of professors of natural philosophy, chemistry, botany, zoology, and so on. Having done that they were called candidates of pharmacy, and every year the king appointed a board of examiners, to which those who had successfully followed out their studies in the university might present themselves for examination. The majority of that board consisted of pharmacists. There they were examined in the application of botany and microscopy with regard to drugs. If they were successful in that they were submitted to a practical examination, which was the chief thing. He had heard complaints in England on cramming, but in their system it was impossible, because the practical examination lasted a week, and all the operations must be done in the presence of one or two examiners. The candidates had to make toxicological analysis, to detect adulterations in medicine, to prepare at least two galenical preparations, and to make some chemical preparations. After that they were passed. The whole of this could be passed in one year if they liked, but it was almost impossible. They could not pass the last examination without producing a certificate that they had been at least two years practising pharmacy. As to their rights, the preparation and sale of medicine was not allowed to any one except a pharmacien, but he must not prescribe. They were, however, more free than in France, for if any one came to a pharmacist and asked for a drachm of rhubarb or half a drachm of anything else he could supply it, but he must not prescribe or give advice. He could sell all medicines except poisons. There were many small villages where there were no pharmacists, and there were physicians or general practitioners who had the right to deliver to their patients the medicines which they prescribed, but they could not do so if there was a pharmacist there. Again, in every university there was a professor of pharmacy, and another point was that a pharmacist could become a doctor of pharmacy, when he was the equal of a medical man having studied at the same university. Very few availed themselves of this honor, because the course prescribed was rather long.

MR. GILLE (Brussels) said in Belgium pharmaceutical education was perfectly free. It was organized at four universities, two of which were State establishments. Diplomas were granted by a board at each university, and also by a Central Board, which was deputed by the Government to examine pharmacists. No one was admitted to the university without having a sufficient preliminary education, and to insure this, a preliminary examination was required. It was anticipated that the regulations would be revised next year, but at present the examination required a knowledge of physics, botany, the elements of mineralogy and zoology. There was then a practical examination in chemistry. Having passed that, the candidate presented himself either at one of the universities, or the Central Board, where he was examined in the natural history of drugs and medicaments, and in theoretical and practical pharmacy, and the elements of toxicology. When he had passed these two examination, he went on to the third which was purely practical, in which he had to make several preparations, pharmaceutical, galenical, and chemical and had also to make toxicological analyses, and to detect adulterations of medicines. After that he must make microscopical examinations and general analyses. As to the rights and privileges of pharmacists, there were no limitations on their number, and he might sell anything he liked without the prescription of a doctor, even poisons on taking certain precautions. He had the exclusive right to sell all medicines, but, as in France, certain articles, even poisons, used in the arts were sold by others. A doctor was not allowed to sell any drugs, but he might deliver medicines to his own patients, but must not keep an open shop. It was only in country districts where it was not possible for a pharmacist to live that medical men dispensed their own medicines.

MR. PETIT (Paris) then proposed the following resolution:—

"It is desirable that in all countries the literary studies required from the pharmaceutical chemist be the same as those required to obtain the diploma of a doctor of medicine."

In France there were special institutions for the study of pharmacy, and it was well understood that the position of a first-class pharmacist was equal to a doctor of medicine, and he thought pharmacists in general should spare no trouble to attain the same position everywhere. All the French pharmacists were quite disposed to accept the same studies, literary and scientific, which had already existed for the first-class pharmacist, the effect of which was that they had the same social standing as a doctor of medicine. In fact, pharmacy and medicine were two branches of the same art. There could not be good doctors without good chemists, nor good chemists without good doctors, and he thought it very desirable that the Congress should express an opinion to the effect which he had stated in the resolution.

MR. V. WALDHEIM (Vienna) thought it was useless to say that a pharmacist and a doctor should have the same education, because they would claim the same rights, and he thought it would be hardly worth while to discuss this proposition.

MR. PETIT said if they had the same studies they ought to be in every respect equal to the doctors. In France the first-class pharmacist had the same literary education and it was only his special studies that were different. The view he had expressed was unanimously held in France.

MR. MEHU (Paris) said that in the French army the rank of a medical man and a pharmaceutical chemist was exactly the same. Their grades corresponded to military ranks, lieutenant, captain, general, and so on. The reason of this equality was that they had exactly the same education, and passed the same examinations up to a certain stage, the practical stage being a later one. This example in a great country and in a great institution like the French army showed that such a thing was possible.

MR. SINIMBERGHI (Rome) then explained the rights and privileges of pharmacists in Italy. They were exactly the same as in ancient times, except in Florence, where they were obliged to sell cigars and other things in order to make a living. He thought it was necessary that a limitation of number should be adopted. Liberty was good in every way, but not for one man to put his hand in another's pocket. When there were too many pharmacists they could not live, and it became an immorality which resulted in many evils. Suppose a man not properly qualified opened a grand pharmacy, but had no qualified assistant; some one might very easily be poisoned, and the punishment of the offender afterwards would be no satisfaction whatever to the relatives of the unfortunate victim.

MR. C. SCHACHT (Berlin) said the difference in education in France and Germany was not great. There, also, chemists were divided into two classes, and some wished for the same education, but the great majority of pharmacists in Germany and Austria were against the higher education which was asked, because of the difficulty they would experience in getting assistants in Germany; there were so many they could not get their own living, and there were illegal shops who sold what they liked, and the really qualified chemist could not sell what he wished because he was restricted by law which said he could not sell poison. The regulations were very beautiful on paper, but they were not carried out.

MR. MADSEN (Copenhagen) said in Denmark pharmacy was very limited. There were about 2,000,000 of inhabitants, and there were about 120 pharmacists in the whole country. The government appointed the locality in which the pharmacist should establish himself, not as in other countries, where the pharmacists were perfectly free, and nearly all went to the larger towns, where there were too many, and in the smaller places there were none.

MR. GODEFFROY (Vienna) thought they might all agree

in what Mr. Petit proposed, and so much the more as he had heard from some pharmaceutical society in Hungary that an apprenticeship of eight years was not too long. He declared frankly his conviction that it was simply impossible. In their colleges there was no faculty for pharmaceutical students at all, and they would be obliged to found a college for the purpose.

MR. V. WALDHEIM (Vienna) wished to say a word in reply to Mr. Madsen. He was of the same opinion as Mr. Schacht; in fact the Austrians and Germans were all of the same opinion. If they had a good education in the gymnasium it was not necessary they should spend so long an apprenticeship. In fact, medical men had finished their studies sooner than pharmacists, and there was no sufficient return for the time and labor bestowed. If they made the curriculum too hard no one would undergo it.

MR. TOROK (Buda-Pesth) said in Hungary the number of pharmacists was limited, as it was in Austria, and there was one class only; if they passed an examination in science they were only obliged to spend two years' apprenticeship instead of three, but in order to pass as a B.A. they had to spend two years. He would ask, was it to their interest to have too many apprentices or to have a limited number, and good ones? As to the rights of pharmacists they might be very well satisfied, because the government defined and defended their interests. It limited the number and there was a tariff of medicaments guaranteed by the government. He thought imposing a higher education would only raise up difficulties and prevent the possibility of getting apprentices.

MR. CARTEIGHE said the committee had considered the resolution which Mr. Petit brought forward, and they proposed that it should be placed on the minutes to be considered in future years, but it would not be desirable to discuss it further at present, as it was rather an advanced proposition, at any rate for England, at the present time.

MR. PETIT thought it was highly desirable that his motion should be accepted; but as it was a question whether it would be opportune at the present moment, he was quite satisfied with its being recorded and its consideration deferred to the next Congress.

The PRESIDENT said practically it was withdrawn for the present, although it would be entered on the minutes, as having been suggested. He thought it would now be desirable to take the sense of the meeting whether they should further continue the discussion on education. They had had many valuable contributions made by gentlemen from different parts of Europe, and he should have been happy to have heard statements from some others, but there were some other matters to bring forward, and therefore it was a question whether they should not close the present discussion.

MR. G. F. SCHÄCHT thought it would be a little unfortunate if the discussion terminated without a word or two being said by an English representative of pharmacy. He did not feel much surprised that so many more foreign gentlemen should have addressed them than English, for the English had in comparison but a very poor story to tell about the qualification of pharmacists in connection with the State. The difference between them seemed to arise especially on that point. It might be possible if English pharmacists were put on the defence that individuals amongst their ranks might be named who would bear fair comparison with their continental brethren, but even if that were the truth it would be possibly more owing to their individual merits than to any other circumstance. The great difference between them consisted, not so much as to the merits of individual pharmacists as to the different relations between pharmacy and the State. Almost every foreign gentleman had interested them very much by telling them what was the exact state of the law in his own country with reference to pharmacy, and was able to say that the law not only provided that a certain curriculum of education should be gone through, but also provided a reward for that study, by which he meant only that kind of reward which a society by law could give, namely, a certain privilege which brought with it a pecuniary recompense. Any one who had risen to give an exposition of the state of affairs in England was unfortunately in the dilemma that he must say that the relations of pharmacy to the State and the State to pharmacy were none at all, they were not worth speaking of. There was no law in England which gave a right to pharmacists to deal in medicines generally. There was no law which limited to the qualified man, who in a sense was recognized, the sole right of dispensing of prescriptions. There was only one small thing given, that outsiders could not deal in or dispense a few articles named in a certain schedule. That was all that the law had ever given to English pharmacy, and, strange to say, the law had done the only thing it could do to damage pharmacy, for there was a law in the statute book which forbade a pharmacist to take the post of public analyst. Those were the conditions, which were so clearly unfavorable to the advancement of pharmacy and the interests of pharmacists, that he hoped foreign gentlemen would bear with them when he had a sad story to tell about their advance in education. There could not be supposed to be a sufficient inducement for high culture when the reward was to be sought for in no special waters at all, but only where every one was allowed to throw his line. Therefore, although pharmacists might admire very much the advance of systematic education amongst their brethren abroad, and much as they individually might be disposed to exalt the merits of high culture in every direction, they were compelled under the exigencies of the case to limit those aspirations. They could not impose a high qualification for the simple reason already named by one gentleman, that it would exclude the proper supply of those who had to labor in this art. Men of high culture and of anything like the literary education required for a doctor of medicine, as indicated by their French friends, would simply leave pharmacy to get into some higher region of employment, where they could get either more honor or more money reward. That was the great difficulty they had to contend with, for, if education were carried to a high point, the individual became disgusted with pharmacy and laid himself open for some higher sphere of usefulness. That was the condition which troubled every man amongst them who wished well to pharmacy, and they did not at present see their way out of it. The institutions of the land were more or less the reflection of the genius of the people; and Englishmen could not adopt institutions which had been the outgrowth of the genius of a foreign people, because they were not suited to them; they could not really introduce foreign regulations into England; it was from the people alone, or from public recognition of the importance of this question that they must hope for any improvement. Their individual efforts might do a great deal, but they would not do exactly the thing they wanted, and enable them to formulate laws giving the requisite protection to those who had properly qualified themselves. These remarks were a mere apology for many of the anomalies which their foreign friends might see existing in English pharmacies. One of the necessities that the earnest educationalist, whoever he might be, had to deal with was being bound to apologize for the condition they were in. Their foreign friends would therefore give a sort of generous approbation to such efforts as they were making, and would probably continue to make in the future, but he feared he must ask their sympathy more on the score of generosity than on absolute approval of all that was done in England. Very much had been said to show the points of agreement at which they might arrive, but it would be too large a subject for him to enter upon them. He could assure all gentlemen present that he personally had gathered very much information from them which he hoped in the future to be able to turn to some account in common with others.

MR. PAYNE (Belfast) said he should have liked, had time permitted, to describe the condition of pharmacy in Ireland, but as that was not possible, he would say that any one who would give his name and address to the Secretary, should receive a copy of their calendar, which con-

tained full particulars of the regulations of the Irish Pharmaceutical Society.

[To be Concluded next Month.]

North Carolina Pharmaceutical Association.

THE second annual meeting of this Association was held in Masonic Hall, at New Berne, on August 9th and 10th. The meeting was called to order by President E. M. Nadal, and upon the Secretary calling the roll, about sixty-five members responded. These, together with forty-one newly-elected members (most of whom were in attendance), ran the number of members present up to a hundred, being about two-thirds of the entire membership of the Association.

A number of the members brought their families.

The Association was welcomed to New Berne by Mr. J. S. Long.

President Nadal responded in a few happy remarks, and tendered the thanks of the Association for the extended welcome.

Mr. E. H. Meadows, of New Berne, also welcomed the Association on behalf of the New Berne profession.

The Association freely availed themselves of the hospitality, which was unbounded, and also attended in a body an excursion by the New Berne brethren to Morehead City, one of the popular southern sea-shore resorts, and where a grand dress ball had been arranged by Dr. G. W. Blacknull, manager of the Atlantic Hotel, complimentary to the Association.

This locality abounds in natural curiosities, more especially marine plants and animals, which are of easy access. It is here that the practical summer course of instruction in biological studies of the Johns Hopkins University is given.

The election of officers resulted as follows:—*President*, S. J. Hinsdale, Fayetteville. *Vice-Presidents*, Wm. Simpson, Raleigh; E. H. Meadows, New Berne; V. O. Thompson, Winston. *Secretary*, T. C. Smith, Charlotte. *Treasurer*, J. S. Pescud, Raleigh.

The following are the committees for the ensuing year:—*Executive Committee*, A. S. Lee, Raleigh; J. H. Hill, Goldsboro; S. H. Smith, Winston; F. W. Hancock, New Berne; J. C. Munds, Wilmington; C. A. Thomas. *Business Committee*, W. C. Porter, Greensboro; C. K. Gallagher, Washington; F. Borden Mace, Beaufort. *Committee on Papers and Queries*, E. H. Meadows, New Berne; J. C. Munds, Wilmington; E. V. Zoeller, Tarboro. *Committee on Code of Ethics*, John Tull, Morganton; J. C. Munds, Wilmington; Richard Berry, New Berne. *Committee on Education*, V. O. Thompson, Winston; J. H. Hill, Goldsboro; J. R. Williams, Raleigh. *Delegates to the Twenty-ninth Annual Meeting of the American Pharmaceutical Association*, S. H. Smith, Winston; W. C. Porter, Greensboro; E. H. Meadows, New Berne; T. D. Crawford, Oxford; H. R. Horne, Fayetteville.

The members of the Board of Pharmacy were constituted a Committee on Legislation.

The members elected from which the Governor is to appoint one, to fill the vacancy in Board of Pharmacy which will occur after June next, are A. S. Lee, Raleigh; John Tull, Morganton; J. H. Hill, Goldsboro; A. W. Rowland, Wilson; L. R. Wriston, Charlotte.

Mr. S. H. Smith, of Winston, was appointed Local Secretary.

A telegram of well wishes was sent the Alabama Pharmaceutical Association, which was being organized the same day this Association was holding its meeting.

A telegram of congratulation was also received and replied to from the Wisconsin Pharmaceutical Association, then in session.

Dr. S. Baird Wolfe, of Baltimore, was present as a delegate from the Maryland College of Pharmacy, and upon request addressed the Association.

Prof. P. W. Bedford, of the New York College of Pharmacy, was unanimously elected an Honorary Member.

The reports of the various officers showed the Association to be in a healthy condition, and indicated a clear balance of $462 in its treasury.

Several volunteer papers were read and elicited some discussion. One by J. A. Sheets, of Wilmington, on a decomposed sample of "Syrup of Iodide of Iron," one by S. J. Hinsdale, of Fayetteville, on some short and accurate analytic processes, and two by E. V. Zoeller, of Tarboro, on "Pharmaceutical Preparations of the Hypophosphites" and the "Metric System as applied to Pharmacy and Medicine."

The following Queries have been accepted for next meeting:

Laudanum as sold by grocers and country merchants is not generally of official strength. Morphia determinations of a number of samples is desired. Accepted by S. J. Hinsdale.

Pill excipients. Which are best for exsiccated sulphate of iron? Accepted by J. G. M. Cordon.

What chemicals can be profitably made by the pharmacist? Accepted by J. P. Stedman.

An account of the collection, preservation, etc., of the medicinal plants gathered in Western North Carolina, with their botanical and popular names. Accepted by John Tull.

A comparative assay of the commercial pepsins and allied digestive agents. Accepted by E. V. Zoeller.

Of the many substances recommended for disguising the odor of iodoform, which is most efficient? Accepted by "A Member."

The Association decided hereafter to award a diploma to the member who exhibits the best collection of chemicals and pharmaceuticals of his own manufacture, at an annual meeting, provided the exhibit be of sufficient merit.

A very creditable exhibit of articles appertaining to the profession were secured through the exertions of Mr. F. W. Hancock, acting Local Secretary, and were tastefully arranged in a large hall that had been secured for the purpose.

The exhibitors were: Tarrant & Company, of New York, who made a very creditable display of select crude drugs, essential oils, fine pharmaceutical chemicals and preparations, and an assortment of druggists' sundries. This house also exhibited a complete line of Eli Lilly's sugar and gelatin-coated pills.

Seabury & Johnson, of New York, exhibited a large and complete assortment of spread plasters and absorbent and medicated cotton for surgical uses, also Lister's antiseptic gauze.

Messrs. Sharpe & Dohme, of Baltimore, showed samples of their manufactures, consisting of sugar and gelatin-coated pills, fluid extracts, elixirs, syrups, and all official pharmaceuticals.

W. R. Warner & Co., Philadelphia, displayed sugar-coated pills, fluid extracts, and handkerchief extracts in bulk.

Maryland Pharmaceutical Company, Baltimore, exhibited a large assortment of their popular non-secret family medicines. These are preparations that are intended to displace a portion of the sale of patent medicines.

W. H. Schieffelin & Co., of New York, exhibited a small assortment of their gelatin-coated pills and a complete assortment of druggists' sundries.

Mr. S. J. Hinsdale, of Fayetteville, N. C., exhibited an excellent and novel contrivance for washing precipitates, and appliance for rapid filtration.

A member of the Association showed a small assortment of new pharmaceutical preparations.

This Association is now a year old, and in its short existence, in addition to above described meeting, which was a success, both intellectually and socially, so much so that no member who attended will ever forget or regret, has directly secured the passage of a moderately stringent pharmacy law and is indirectly the cause of the establishment of "School of Pharmacy" at the State University.

The Association adjourned to meet in Winston, on second Wednesday in August, 1882.

TARBORO, N. C. E. V. ZOELLER.

CORRESPONDENCE.

Simmons' Liver Regulator.

GENTS: We observe you copy in October number of NEW REM. from *Medical and Surgical Reporter* a bogus recipe for Simmons' Liver Regulator found in a druggist's private recipe book. Now let us say that the druggist's private recipe should have been kept private, for out of four ingredients not more than two of them ever entered into the composition of Simmons' Liver Regulator, and the absurdity of the private recipe book information is that one ingredient mentioned, to our knowledge, is not found in the materia medica as an article that can be preserved in the form of a powder, and since Simmons' Liver Regulator is largely used as a powder, the stupidity of such a recipe is palpable; besides M. A. Simmons never made Simmons' Liver Regulator. Yours respectfully,

J. H. ZEILIN & CO.

DEAR SIR: I notice in your issue for October, page 304, a formula taken from *Medical and Surgical Reporter*, purporting to be that of "Simmons' Liver Regulator." I have good reason to believe said formula incorrect, and the one I here furnish you to be a copy of the original. This formula was given to me several years ago by Dr. C. of this place, whose father was presented with same by Dr. A. Q. Simmons, the originator.

Any one so disposed can prepare this formula and on comparison with the preparation put up by J. H. Zeilin & Co., of Philadelphia, will be found identical.

℞ Hepaticæ,
Leptandræ,
Serpentariæ.....āā ℥ i.
Sennæ..... ℥ iss. M.

Put the ingredients into two and a half (2½) pints of boiling water. Let stand eighteen (18) hours, then strain. Add half-pint good whiskey. Respectfully yours,

JOS. JACOBS.

ATHENS, GA.

On Testing Potassium Iodide.

IN the October number of NEW REMEDIES the method with mercuric chloride is copied. This process is also given in Stillé and Maisch. It is attractive by its beautiful simplicity, but on reading it over, it occurred to me that the solubility of the HgI_2 in solution of bromides (a fact not mentioned in several books I consulted) would interfere with its accuracy. Some experiments I have made confirmed my fears, for I find that when the bromide is in sufficient excess, the iodide solution may be added to the mercuric without *any* visible change. The process, therefore, cannot be recommended.

T. D. REED, M.D.

MONTREAL, Oct. 15th.

Cocculus Indicus as a Remedy for Epilepsy.—DR. C. B. BURR, of Pontiac, Mich., has tried the effects of *Cocculus indicus* in a number of chronic and unpromising cases of epilepsy, met with in asylum practice, and is encouraged by the results to expect that it will prove curative in more hopeful cases. One-fourth of a drop of the fluid extract, gradually increased to 1¼ drops, may be given thrice daily, and has been found capable of controlling the outbreaks of maniacal excitement to which epileptics are liable, as well as of lessening somewhat the frequency of paroxysms. Accepting the view that the essential condition of an epileptic attack is primarily vascular spasm by which sudden localized anæmia of the brain is produced, a satisfactory explanation of the action of Cocculus indicus is, that as a vaso-motor paralyzer, its influence is to keep the cerebral blood-vessels in a state of permanent relaxation, thereby preventing the occurrence of anæmia. Experimental observation has demonstrated that its influence is chiefly exerted upon the cardiac and vascular systems. The conclusion reached is that those patients in good bodily health, whose convulsive seizures are accompanied by maniacal excitement, seem to be the ones most likely to receive benefit.—*Detroit Lancet.*

FORMULAS.

A New Composition for Sealing Bottles.—M. POTEL has lately introduced a new compound for sealing over corks, and for moulding various ornaments, etc. It is made, we learn from a correspondent, who highly commends it, by soaking gelatin in water for a short time and then dissolving it in glycerin, the former being in excess; to half the amount of glycerin thus used some tannic acid is added, and solution aided by the heat of a water bath; these solutions are then mixed, when the compound is ready for use. Any desired coloring matter may be added, and if required for the fabrication of any small article, sulphate of barium, Pattinson's white (chiefly a hydrated oxychloride of lead) or white lead, may be worked in it until the correct color and texture is arrived at.—*Monthly Magaz. of Pharm.*

Treatment of Hydrofluoric Acid Wounds.—A. E. ROBINSON writes to the editor of the *Chem. News* that one of his assistants had been seriously burned by hydrofluoric acid, the face-wounds being very severe and deep, and that he has treated them first with a paste of chalk and water, and afterwards with a mixture of chalk and olive oil. The latter mixture allayed the pain and suffering considerably, and materially hastened the healing process, the face-wounds being now healing over, forming a perfectly healthy skin.

Boracic Acid Ointment.—H. SCHÖNEWEG recommends the following formula:

Boracic acid	1 part.
Glycerin	3 parts.
Petroleum ointment	6 parts.

Dissole the boracic acid in the glycerin with the aid of heat. Cool and mix it with the petroleum ointment, previously melted and allowed to become semi-solid.—*Pharm. Zeit.*

Benzoate of Sodium in the Treatment of Acute Rheumatism.—DR. DAVID MACEWEN (*Brit. Med. Jour.*), observing that benzoic acid is closely similar to salicylic acid in chemical composition, and somewhat the same in physiological effects, endeavored to determine whether it, like the latter, possesses anti-rheumatic properties. He publishes notes of five cases in which the remedy was employed in the form of benzoate of sodium. On the first occasion in which he used it, the relief of pain and subsidence of fever were so immediate, and the recovery was so rapid and complete, that he had no hesitation in adopting the same treatment in subsequent cases. The dose was, in the earlier cases, fifteen grains of the salt every three hours; in the later cases, twenty grains every two hours. In all the cases the symptoms passed off in periods varying from three days to a week after the commencement of the medicine; in none did cardiac complications arise in the course of treatment, and Dr. MacEwen thinks the convalescence was more rapid than in cases he had seen treated with salicylate of sodium. Benzoate of sodium possesses this advantage, that it does not give rise to the nausea and depression or the unpleasant head-phenomena which the salicylate frequently produces. It is most conveniently prescribed in the form of a mixture, and it may be given in doses of fifteen to twenty grains every two or three hours. It should also be continued in diminished doses for twenty-four to forty-eight hours after the rheumatic symptoms have disappeared.—*Med. Times.*

German Tobacco.—*La Presse Médicale Belge* says "Every year in Thuringia there is consumed a thousand tons of beet-leaves transformed into tobacco. The same leaves, as well as those of chicory and of the cabbage undergo the same metamorphosis at Magdebourg and in the Palatinate. Vevay cigars are of the same."

ITEMS.

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The air-pump in use was entirely constructed by Prof. Curtman, showing great mechanical ingenuity on his part.

Everybody was well pleased with the opening exercises, and it is to be hoped that the college will continue to prosper and rise to one of the foremost schools of learning in this country.

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